STWP REVIEW

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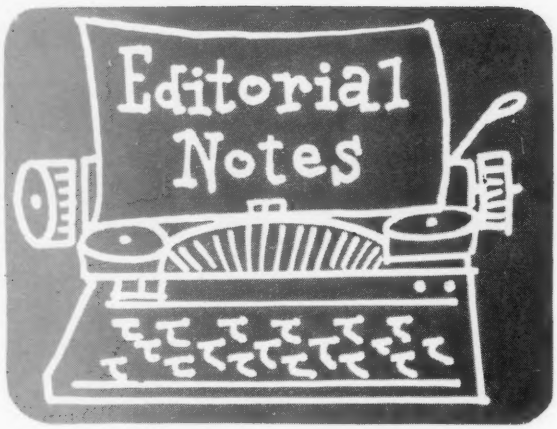


Unknowing Duplication in Research—A Perennial Tragedy

Hon. Hubert H. Humphrey

Chairman, Subcommittee on Reorganization and International Organizations, U.S. Senate Committee on Government Operations

"How much research and development needlessly duplicates prior work?"

This is a crucial question, and no one is sure of the answer. Some estimates are that, in Federally sponsored research and development, unknowing duplication ranges from 10 per cent to as high (in developmental work) as 50 per cent.

Whatever the level, it represents a tragic, pitiful waste in men, money, and material: our nation cannot afford this waste. Reliable information systems must be established and fully utilized in order to reduce the degree of unknowing duplication to an absolute minimum.

Technical writers and publishers realize this problem because they encounter it almost every day. They are aware of a critical breakdown in the nation's scientific communications despite, or often because of, "mountains" of technical literature. Consequently writers and publishers often go to considerable effort, prior to writing or releasing a "new" research-and-development report to try to determine whether it is genuinely new or has been recorded previously elsewhere. Despite such efforts, present information systems are so inadequate that so-called "new" reports will appear in print but will merely turn out to be repetitions of knowledge buried elsewhere.

The consequence is frustration and disappointment, not only to the writer and the publisher, but to the scientist or engineer whose work is being described. A man or team sometimes spends months or years on work that might have been avoided if information on the real "state-of-the-art" had been more accessible in the first place. For every instance of outright duplication, there are probably scores of cases in which at least part of the painstakingly performed work could have been eliminated if obscure data had been more accessible at the outset.

IMPROVED INFORMATION SYSTEMS

In view of these facts, the Senate Committee on Government Operations has been striving for years to improve Federal Agencies' information systems. There are strong fiscal and other reasons for our efforts: The Federal Government is spending $9 billion a year for scientific research, development, testing, and evaluation. Of that sum, three-fourths is for national defense. A rising proportion is for civilian space science. The over-all work involves over 160,000 projects now underway in over 9000 facilities. Many of these tasks overlap. No one can foretell which projects may be affected by work underway elsewhere. Projects in the life sciences interact with and draw upon projects in the physical sciences and vice versa. Today's physics, chemistry, and biology converge on common targets and require interdisciplinary skills.

Time is the crucial dimension. Manpower—particularly the most qualified scientists, engineers, and technicians—is in scarce supply. A single man-year spent needlessly repeating experiments performed earlier is a man-year which can never be regained.

MANAGING SCIENCE INFORMATION

In order to help remedy the breakdown in communications, the Senate Committee on Government Operations has issued a series of publications on the subject of managing nonclassified science information. These publications include:

1. Senate Document 113, 86th Congress, "Documentation, Storage, and Retrieval of Information," an analysis of the problem of managing *published* literature.

2. Senate Report 243, 87th Congress, "Coordination of Information on Current Scientific Research and Development Supported by the United States Government," which analyzes the problem of managing *pre*-publication literature.

The latter report has opened up a relatively new vista in the area of science information. For years, scientists, engineers, writers, and publishers have worried about the problem of how to find articles or reports which are already in print. They have sought ways to find an article, monograph, or book in its original form or in abstract, index, or other secondary form.

Now, however, our latest Senate report reveals another critical problem: how to locate knowledge about research and development that is still in progress. This work is not recorded anywhere, and it may never be recorded. Some of this work may be reported orally at a professional meeting, but it may never be published; indeed some work may not even be orally communicated.

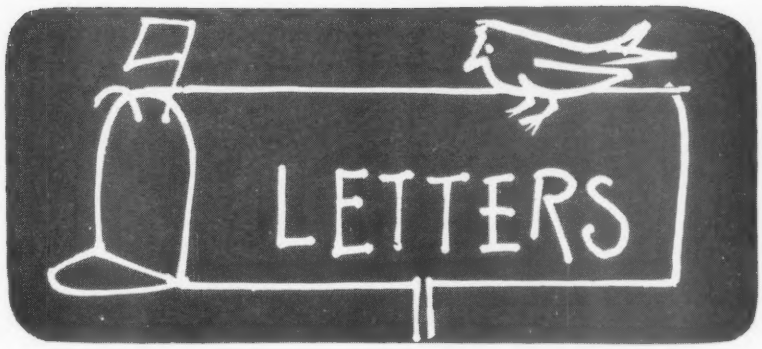
Why? Perhaps because it ends in "failure," or because a Federal contract or subcontract is cancelled, or a key person leaves and the project dies or is altered. Maybe the project is completed, but the scientist or engineer turns so quickly to other fields that he doesn't bother to write down the results. Perhaps the recipient "buries" the report instead of disseminating it.

UNJUSTIFIABLE DUPLICATION

Whatever the reason, vast amounts of information sink disastrously without trace. What is the result? Someone somewhere unknowingly reperforms the same or similar work. Such unknowing duplication (in contrast to planned, intentional duplication) cannot be justified.

What then is the answer? A bold, imaginative program must be launched to strengthen the nation's largely archaic science information systems. The latest electronic data processing methods — already in operation in some of the

(Continued on Page 28)



To Editor, *STWP Review:*

The position classification for technical writers and editors produced by the U. S. Civil Service Commission, with the "substantial contribution" of the Washington Chapter of the STWP, reflects the present sad status of these occupations. Further, it does not, contrary to the words of Mr. Keene, Chief of the Standards Division of the Civil Service Commission, "take into account the trend of its future development."

The basic defect of the standards—and of the present "profession" of technical writing and editing is that it is demonstrably subprofessional. The first paragraph of the Series of classifications, as reported in the April 1961 issue of the *STWP Review*, states, "Positions which require full professional or technical subject-matter knowledge . . . are excluded from this series." This point is emphasized and reemphasized throughout the classification to the end that, despite inferences and disclaimers to the contrary, the clear picture is painted—**the technical writer or editor is not professionally (technically) trained in the field he serves.**

Until this philosophy is destroyed, until professional editing demands professionals trained in the field, the profession will not be professional. The Civil Service Standards represent a big step in the wrong direction.

Milton H. Aronson
Pittsburgh

To Editor, *STWP Review:*

This was going to be a letter about one article in the April 1961 *Review*, but on further study I realize that the entire issue deserves comment.

Something good has happened to the STWP, and the change is reflected in the *Review*. Compare this issue with those of earlier days, and you will find a different tone and new subject matter. We are no longer self-consciously examining ourselves and our reason for being; we are talking about the realities of technical communication. We seem to have outgrown an anxious, defensive, somewhat plaintive attitude; today's *Review* exhibits increasing vigor, maturity, and aggressiveness in the best sense.

As persons engaged in the business of being articulate, accurate, and objective, we are particularly fortunate in being able to criticize fairly and to profit from criticism. (Those without these abilities usually find other kinds of work more comfortable.) Past issues of the *Review* have contained some rather platitudinous paragraphs—even entire articles—but this issue has hardly a sentence that is not worth deep attention.

Perhaps this is a matter of luck as well as the editor's judgment; future issues may well contain platitudes, obscure writing, or overspecialized information. If so, our membership should make itself heard. I will even stick my chin out and say that my knuckles should be rapped if an article of mine isn't up to the standards we expect. Criticism will make me uncomfortable or angry, of course, since I'm no more well-adjusted than my neighbors, but it will also be heeded because part of the career I've chosen consists of listening to criticism and trying to separate truth from pride.

Professional criticism can be refreshing, and most certainly ought to be constructive. As a sad contrast, I cite the bilious correspondence in the current issue of *Science* (published by the AAAS); unfortunately, other journals are subject to the same degradation. Humor and rivalry are commendable, and motivate much creative effort, but elaborate sarcasm, polite insults, and the crushing retort have no place in our intramural discussions. Indeed, our profession itself requires the utmost in objectivity, explicitness, avoidance of double meaning, and subjugation of our argumentative emotions. We may, of course, be asked to engage in sarcasm as part of the job—if a project leader, for example, wants help in making a crushing retort as devastating and effortless as possible—but **we must speak plainly to each other, always.**

Two articles in the April *Review* are of particular interest to me.

(Continued on Page 31)

A NOTE TO CONTRIBUTORS

Contributions to the *Review* are always welcome; short articles of 500 to 1000 words are most easily fitted into our small magazine.

Send the original on heavy white bond paper, typewritten, double or triple spaced, plus two carbons. Leave at least a 1-inch margin on all sides, number the pages consecutively, and be sure that all illustrations are keyed to the text.

Articles should not exceed 2500 words plus three illustrations.

We assume that every article is approved by your company before it is submitted. The authors' names and affiliations should be on the manuscript. A short biographical note is most helpful. This note should include the present title of the author, the full name of his organization, and complete information about books, other articles, or any other publication credits. Please address all contributions to the Editor; the Review Committee will read your article and our publication plans will depend on their collective judgment.

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The Slide as a Visual Aid

Ralph E. Vogt

FREQUENTLY A TECHNICAL MESSAGE *can be presented with greater impact if augmented by visual aids. Publications groups are often called upon to plan and produce slides, which are both popular and practical. This article encompasses idea content, slide sizes, line weight and lettering, size and proportion of image, use of color, projection facilities, and seating of viewers.*

When the oldtimers in the bleachers yelled, "Slide, Kelly, slide," they were yelling about something that was pretty critical since it could mean the difference between a run and an out. In today's modern world, another type of slide is becoming increasingly important, and it too can mean the difference between success or failure. This is the slide as a visual aid in the field of technical communications.

The average engineer or scientist who is to speak before a group will use blackboards, flip-charts, film strips, motion pictures, easel charts, animation devices, transparent projectors, opaque projectors, slides, or some other ingenious method to deliver his message visually as well as audibly. In many cases the result is a more interesting, more effective presentation. There is also the chance, however, that poorly prepared visual aids will hinder and confuse rather than help and clarify. Thus an added responsibility is falling more and more on technical publication or information groups who must devise and produce simple yet effective aids.

Visual aids to supplement an oral presentation fall into two major categories—those used in original form in normal light (blackboards, flip-charts, easel charts) and those requiring enlargement and projection, usually in the dark or subdued light (transparent and opaque projectors, film strips, movies, slides). Where a choice is possible, there are arguments in favor of both ways, and the question is frequently debated. In most cases, however, the choice is dictated primarily by the size of the intended audience. Once the group gets above a fairly nominal number, perhaps 25 to 30 persons, an enlarged, projected image is usually required to ensure legibility. Within this category slides are by far the most practical and popular speaker's aid, and this discussion is therefore confined to the preparation and use of slides.

PLANNING

Careful planning is the foundation of any successful illustration, but is perhaps even more important to slides. A good slide must be clear, simple, and legible, with a finished, professional appearance. It must be aimed directly at the interests, needs, and background of the intended audience. It must convey the message more clearly and forcibly than words. If it is not all of these things, the slide is better left unused since it will do more harm than good.

The following are well-tested guides that will help speakers plan effective slides and simplify their final preparation:

1. Keep the slide simple. Assisted by the speaker's words, the audience should be able to comprehend a slide almost at a glance. This should require little effort, or attention will be divided between seeing and hearing. A slide, like a highway billboard, must be quickly read and easily understood.

2. Show only the items to be specifically mentioned in the presentation. Take one idea at a time.

3. Limit material to essential highlights to be impressed on the audience. Reject all other ideas. A few simple, important slides clearly explained are far more effective than many not fully understood.

4. Avoid lengthy, complicated slides. A useful guide is limiting display time to a maximum of one minute per slide. A slide that requires more than this is usually too complicated and will confuse the audience. Crowding the slide also restricts the size of the lettering that can be used.

5. Use key words rather than full sentences. Reading sentences from a slide will annoy the audience since they invariably read ahead of the speaker and eventually become confused. Try to limit words to about 20 per slide. Figure 1 is an example of effective word-slide copy.

6. Since a slide should include only those items to be discussed, a title may often be omitted. If a title is shown, keep it short and do not repeat words already on the slide.

7. Limit curves on a graph to two or three, well separated and clearly distinguished. Omit symbols and data points on a graph if they are not essen-

tial. Figure 2 shows preferred copy style for a graph.

8. For a table, use simplified captions, and if possible, round off the numbers. Use no more than four to six columns and a maximum of 10 lines. Try to use a combination of about 20 items in the table (e.g., 4 columns, 5 lines; 3 columns, 7 lines). Tables with more items are too unwieldy for rapid assimilation. Use adequate spacing, with triple spaced lines and rules between columns. Figure 3 shows good, simplified copy for a tabular slide.

9. Remember that existing drawings made for other purposes are rarely satisfactory for direct use as slide material. Projection imposes definite limits on sizes of lettering and line weights. These well-known optical limitations must be considered in planning the slide.

1. EMPHASIZE HIGHLIGHTS
2. USE ONE IDEA PER SLIDE
3. SHOW PERTINENT MATERIAL ONLY.
4. USE SIMPLE TERMS
5. FOLLOW RECOMMENDED STANDARDS
6. REHEARSE
7. USE MODERN EQUIPMENT

Figure 1—Effective Word Slide Copy

COPY PREPARATION

There are two standard sizes for lantern slides in the United States, 3¼- by 4-inch and 2- by 2-inch. Other sizes of transparencies are sometimes used for still projection, but these are usually considered special applications requiring their own particular projectors. Although most of the basic principles apply to all types, copy preparation as described here specifically covers standard slide sizes.

Surveys have shown that more than three out of four slide users prefer the larger 3¼- by 4-inch size. The main reason for this is that a larger and sharper image can be projected, and this is vital in large meeting rooms with big screens. The clearer image is possible because of the larger original size of the slide and also because more powerful, professional-type projectors are more common for the larger lantern slides. In addition, the larger slides allow greater flexibility in the preparation of copy and present fewer production problems.

The smaller slides have two advantages—they usually cost less and they are easier to carry. The quality of the image that appears on the screen, however, is not satisfactory unless a high-quality projector is used. The size of the image is also limited. Amateur-type projectors are completely inadequate for most meeting rooms, and the use of 2- by 2-inch slides is not recommended except for small groups and short projection distances.

With the larger slides, a standard mask with a horizontal field approximately 2¼ by 3 inches is generally used. This is the actual projected area of the slide and is in proportion to the dimensions of most projection screens. The nominal ratio of the short (vertical) side to the long (horizontal) side is thus 3 to 4. This 3 to 4 ratio is important and should be maintained for any size original copy to achieve uniformity and the best reproduction. A separate mask, 1⅞ by 2¾ inches, is frequently used for predominantly vertical slides. In all cases it should be remembered that mask sizes vary slightly among manufacturers and many different sizes and shapes are available.

Along with the over-all proportion of the slide copy, the weight of lines and size of lettering is most important. All too often speakers try to make slides from drawings, charts, or other existing material having light lines and small lettering. The results as they appear on the screen are invariably unsatisfactory. Aside from general overcrowding, the most common error in preparing slides is using material that is not bold or large enough to be sharp

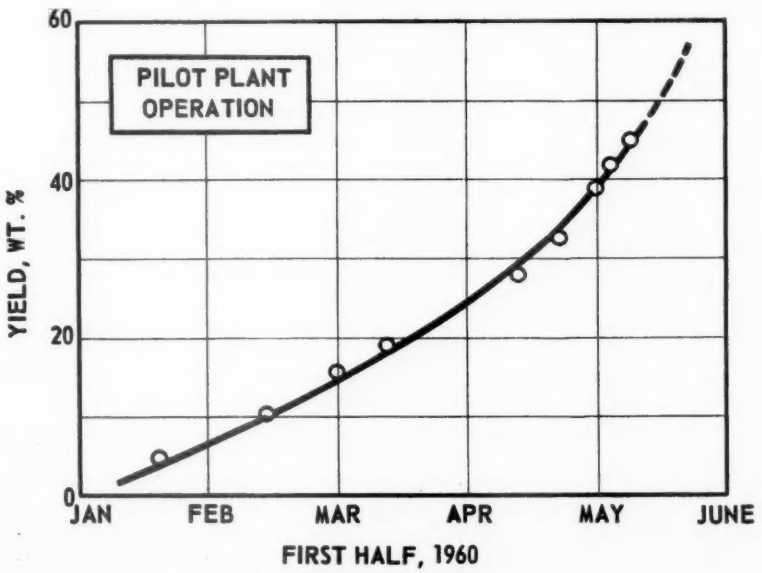

Figure 2—Preferred Copy Style for a Graph

and legible when projected. This question of letter and line size is covered more fully in a later section.

Table 1 lists general specifications for standard slide copy, based on recommendations of the American Standards Association. The specifications shown are above minimum standards and may be modified slightly. If followed closely, however, they will allow economical preparation and will ensure effective projection and high legibility.

The following suggestions should be kept in mind when using this table:

1. Use full height and width dimensions when possible without distorting the subject matter. If necessary, copy size may be less in either dimension, but not in both.

YEAR	1900	1950
CITY	POPULATION IN MILLIONS	
NEW YORK	3.4	7.6
CHICAGO	1.7	3.6
PHILADELPHIA	1.3	2.0
DETROIT	0.3	1.8
LOS ANGELES	0.1	2.0

Figure 3—Simplified Copy for a Tabular Slide

Table 1—Standard Slide Copy Specifications

Max. copy size (in.)		Mechanical lettering		Hand lettering		Line weight (in.)		
Height	Width	Type	Approx. height (in.)	Template number	Height (in.)	Light	Med.	Heavy
3¼	4¼	Standard typewriter, pica		100	0.10	0.007	0.013	0.026
3¾	5	IBM Executive typewriter, or 12-point type	⅛	120	0.12	0.008	0.017	0.034
4½	6	18-point type	3/16	140	0.14	0.010	0.021	0.042
7½	10	24-point type	¼	240	0.24	0.017	0.035	0.069
9½	12½	30-point type	5/16	290	0.29	0.021	0.043	0.086

2. Normally, lettering should be all capitals.

3. Mechanical type should be a sans-serif (Gothic) face with lines of uniform weight. Light, Roman faces with thin lines are not generally suitable.

4. Make open symbols the same size and weight as the lettering used; solid symbols should be two-thirds letter size.

5. Use light lines generally for graph grid lines and fine cross-hatching; medium lines for lettering, symbols, borders, and drawing outlines; and heavy lines for curves, important outlines, and flow lines.

6. Do not use less than the standards shown for negative (reverse, or white on black) slides. It is preferable to use the next larger type and heavier line weight than would be used for positive (normal black on white background) slides.

These recommended standards are based on the 3 to 4 ratio of larger size lantern slides. Although the 2- by 2-inch slides have a square field, the most commonly available screens are wider than they are high. Thus it is not always possible to make full use of a square image area, and because of this, it is safer to follow the standards for larger slides since the dimensions given can be used interchangeably with 2- by 2-inch slides.

USE OF COLOR

As in almost any illustration, color can be highly useful in increasing the clarity and attractiveness of slides. Different items can be separated, important points can be accentuated, and over-all eye appeal can be improved by the judicious use of color.

Colored slides can be prepared in either of two ways:

1. By using colored original copy and photographing it with color film. From this a color transparency is made, which is used in the slide. With this method, natural color photos and more complex colored artwork can be utilized. Normally, however, it is more expensive and requires longer preparation and processing time. Also, the copy must be carefully prepared with proper combinations and densities of color to avoid loss of brilliance and contrast.

2. By adding color to the slide itself. In this method, normal black and white copy is prepared, with some slight modifications for reverse (negative) slides. The slide is then made up as a black-and-white and hand colored with transparent dyes, colored cellophane, or transparent, colored, plastic material. Such color can be applied to the over-all slide to reduce glare, or it can be spotted in selected areas for added emphasis. This method is generally faster and less costly than preparing original copy in color.

No matter which method is used to prepare the slides, the number of different colors used should be held to a minimum to avoid a gaudy, "circus poster" effect. Colors giving good results without offending the eye are yellow, light green, orange, and light blue. Red is not usually recommended since it causes difficulty for persons who are color blind.

PROJECTION FACILITIES

With proper planning, careful copy preparation, and good production techniques, the result will be high quality and attractive slides. Nevertheless, it is necessary to use suitable projection equipment and make adequate audience seating arrangements to ensure an effective presentation.

The standard 3¼- by 4-inch projector is a 1000-watt, incandescent-type machine, although more powerful arc projectors are available for use under difficult conditions. Lenses vary, but a

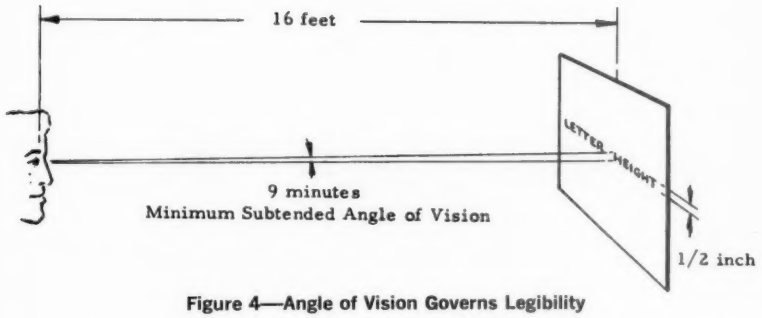

Figure 4—Angle of Vision Governs Legibility

9- or 12-inch focal length lens is frequently used, with other common lenses ranging from 6 to 22 inches. Remember that short focal length means a wide projection angle with the projector close to the screen; long focal length means a narrow projection angle with the projector well back from the screen.

For general use, a white matte projection screen is preferred over a beaded type and usually gives a sharper image.

Auditorium lighting also has a bearing on how this image appears on the screen, and in turn affects legibility. It is known that, compared to daylight vision, the human eye becomes one thousand times more sensitive once it is accustomed to total darkness. Complete darkness, however, can induce eye fatigue through excessive brightness and image contrast on the screen. This is especially true with colored slides where different shades are difficult to distinguish. Auditorium lighting is most effective when there is just enough for the audience to be oriented to its surroundings.

Seating arrangement is another important factor in getting maximum visibility, since legibility is governed basically by the subtended angle of vision. As shown in Figure 4, this is the angle formed by two imaginary lines drawn from the eye to the top and bottom of a letter as projected. Thus the distance of the viewer from the projected image must be in relation to the size of the printed characters.

Opticians have shown that for minimum legibility standards the subtended angle of vision should be about 9 minutes. Assuming that this angle remains essentially constant, there is a direct ratio between the height of the letters on the screen and the distance of the eye from the screen. Based on this ratio, it has been established that the letters should be at least ½-inch high for each 16-foot distance to the farthest spectator (e.g., 1 inch for 32 feet; 2 inches for 64 feet).

Side-to-side location relative to the screen also has an important effect on visibility since viewers seated too far to the side see a distorted image. The best arrangement is to seat the audience within a 20-degree angle from the center of the screen; the area within a 30-degree angle can be used if necessary.

Figure 5 shows the relative seating preferences.

Slides involve no complicated production techniques, are relatively inexpensive, and are easy to prepare if the simple guides previously outlined are followed. Usually the only problem is getting the necessary planning and preparation time for both the harried speaker and the equally harried man responsible for visual aids. Ω

About the Author . . .

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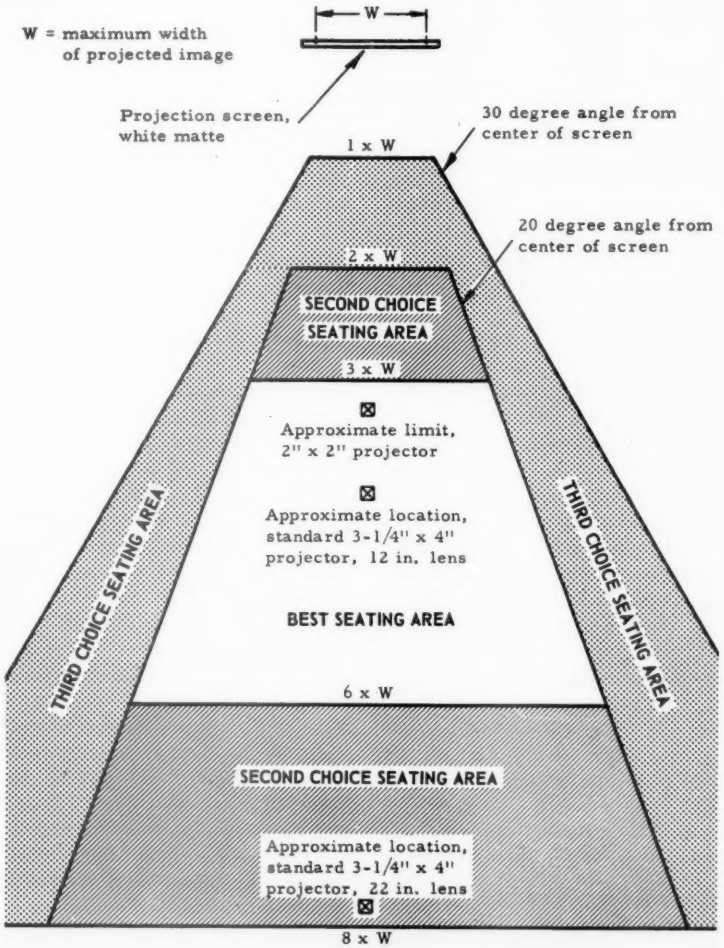
W = maximum width of projected image
W
Projection screen, white matte
30 degree angle from center of screen
1 x W
20 degree angle from center of screen
2 x W
SECOND CHOICE SEATING AREA
3 x W
Approximate limit, 2" x 2" projector
Approximate location, standard 3-1/4" x 4" projector, 12 in. lens
BEST SEATING AREA
THIRD CHOICE SEATING AREA
THIRD CHOICE SEATING AREA
6 x W
SECOND CHOICE SEATING AREA
Approximate location, standard 3-1/4" x 4" projector, 22 in. lens
8 x W

Figure 5—Recommended Projection Facilities

PATTERNS OF WORD FORMATION
With Special Application to Technical Terms

Frank R. Smith

TECHNICAL PUBLICATIONS *reveal a constant flow of new terms, and many of them have an interesting origin. How some of these were derived is explained in this article, which treats the patterns of word formation involving addition, subtraction, conversion, and invention. These patterns are in evidence almost daily both in oral and written form, and as professional "word handlers" technical editors and writers should be aware of them.*

This article surveys the most common patterns by which new words are formed and gives some fairly recent examples from our technical vocabulary. The patterns are well established, but the examples given are not meant to be inclusive, and some of their origins are merely guessed at or reported from hearsay.

There are possibly a dozen patterns of word formation, some of them of purely academic interest in this discussion. Some words, for instance, seem to be formed in accordance with a sort of psychologically based *sound symbolism*; for example, a great many words which suggest smallness share the same vowel sound: little, kid, slim, thin, skinny, shim, bit, pin, wisp, whit, midget, pigmy. (But recall "big.") Other words are said to be *echoic* or *imitative* because they are attempts to reproduce the sounds they stand for: hiss, bang, moo. About the only recent "technical" words that come to mind as having been formed this way are "sonar *ping*" and "sonic *boom*."

The other patterns can be roughly classified as involving *addition, subtraction, conversion,* and *invention.*

ADDITION PATTERNS

One of the most frequently used patterns in creating new technical terms is derivation, in which a root word of good standing is supplied with one or more of the many affixes available in English. Although affixes come in three varieties—prefix, infix, and suffix—only the first and the last are much used, and they are sometimes also **mis**used or **over**used (note the prefixes). Most of us are familiar with the horrible flourishing of the suffix "-wise," which yields such monstrosities as "Impedancewise this circuit is good, but conductancewise it is not." Again, considerable confusion has arisen lately over "inflammable," which was formed with a suffix and "inflame," which in turn came by the addition of a prefix to the infinitive "to flame." Some narrow-minded pedant in high circles probably pointed out that the prefix "in-" customarily shows negation and that therefore "inflammable" means exactly the opposite of its intended sense. And so there has been a great deal of repainting and reprinting to eliminate that possibly ambiguous "in-," which just could have caused trouble, claritywise.

One other source of possible trouble in forming words by adding affixes is the richness of our resources. We may use affixes from several languages, and so we have negating prefixes like in-, il-, im-, un-, dis-, and non-; which do we use? We have synonymous pairs like uni- and mono- and triplets like -ness, -ity, and -cy (put "normal" in front of these); on occasion, however, we make useful but artificial distinctions, as in "supersonic," "hypersonic," and "ultrasonic."

Despite these dangers, the technical man goes around tacking prefixes and suffixes onto roots with wild abandon, most of them Latin and Greek; and so we have photomultiplier, infrared, aerospace, astronautics, geophysics, biometrics, intracellular, anti-matter, and finalize (horrors!).

One reason we have so many of these is that it is very easy to create them. Anyone can do it. If you want to have some fun, take a nonsense word like *densible* and assign it a meaning. Let's use its connotive value and relate it to "dense," and since it has an adjective form, we'll say it means "capable of being made dense." Now let's add to it: we *densibilize* a substance, *dedensibilize* it, and *redensibilize* it, in which case the substance gains and loses its *densibility* in actions we can call *densibilization* and *dedensibilization*; if we happen to be against *densibilizing* substances, we are *antidensibilizationists.*

This is not ridiculous. Look at a real example: we start with a noun, *miniature*, convert it with a suffix to a verb, *miniaturize*, then add a prefix to form *ultraminiaturize* (or, in some journals, *subminiaturize* or *microminiaturize*), and convert back to a noun, *ultraminiaturization*. The final step into lunacy occurs when someone says or writes: "The project has not shown

much progress, *ultraminiaturization-wise.*"

This process goes on all the time, but it is hardly less popular than the other addition process, *compounding.* If we combine a noun with an adjective, so that the noun modifies the adjective directly as in "corrosion resistant," we have efficiently eliminated a word from the expression "resistant to corrosion"; and if the combination is frequently used, it comes to be regarded as a unit; it is then written first with a hyphen and later, many times, as a single word.

In addition, we form new compounds by putting together noun and noun, noun and verb, adverb and noun, verb and adverb, and so on. The origins of this practice go back to Old English, and occasionally even three words are put together, as in "signal - to - noise ratio" and in "go-no-go" gauge.

Instances of compounding are so numerous that they require no special discussion. For illustration, however, we might mention shock wave, broadband, afterburner, blast-off, closed loop, open end, beta decay, flip-flop, and in-house. (One reason for the reigning confusion about hyphenation in technical writing can be inferred from this brief discussion: Since compounding is a frequent and highly useful device for making ourselves economically clear, and since the spelling of the words changes progressively, we are often in doubt as to the current status of a compound; do we, for example, write "feed back," "feed-back," or "feedback"? The question is "compounded" by the distinction here between noun and verb use, in which pronunciation differs.)

Compounding, then, is useful and legitimate unless it is carried to an extreme, so that attributives are stacked up before a noun, say, in such profusion that one gets alarmed at finding himself reading a series of perfectly good English words that make no sense whatsoever. Here is the appalling title of an article in the *STWE Review* about two years ago: "Electronic Instrument Industry Instruction Manual Procedures Survey."

SUBTRACTION PATTERNS

The second class of word-formation patterns involves removing parts of a word or a group of words to create a new term. It is interesting that the verb "to edit" was created by removing the apparent suffix "-or" from what is the true root, "editor." This process is called *back-formation* and is based on what linguists term folk etymology—uneducated guesses as to the root of the word; and so we have the verbs to peddle, to burgle, to buttle, and so on—not to mention to enthuse, which is of the same illegitimate origin.

A form of word shortening we all use in our constant effort to minimize our speaking effort is the creation of *stump words* by the elimination of one or several syllables of a long, frequently used term. Most of them begin life as slang or jargon and then by another process to be mentioned later, conversion, they reach acceptance. Thus instead of speaking laboriously of a servomechanism, we call it a "servo," using just the prefix; that, in turn, acquires word status as a noun, takes a suffix, and we have "servoes." Similarly, we have plane, gas, photo, repro, spec, gyro, scope, prop, prime, and so on—most of them terms readily accepted in good technical writing today.

Some, like "pot" for potentiometer, are still in the category of shoptalk, but advertisements (ads, that is) that are slanted at the technical man try to appeal to his insider's pride in a secret language by throwing such terms casually into the text. That's the first step toward respectability: being seen in print. After a while, then, if the term is truly useful and economical, it gets by an editor with the explanation that it is seen all the time in the literature, and then it really is in.

Still another form of shortening, one that *Time* magazine indulges in habitually, is *blending* or *synthesizing*, making a new word out of two or more old ones by dropping syllables and combining: molecular electronics becomes "molectronics" by this process, for instance. Other examples: "immittance," a cross between impedance and admittance; "positron," a positive electron; "transistor," which is part transmitter and part resistor, and which has gone through the additive process too, giving us "transistorized," etc.; "turboprop," combined from turbojet (which has, however, shortened to "jet") and propeller (shortened naturally to "prop") — by the way, Madison Avenue seems to be regularizing this one to "propjet." Then there is "hydramatic," from hydraulic and automatic, and extended beyond the trade-name use; "autopilot," an automatic pilot, again an extended trade name; "avionics," from aviation electronics; "bionics," a brand-new one from biology and electronics; and "radome," a radar dome.

"Radar" itself is a coined term which came into existence by a pattern similar to but not quite the same as blending. The word is a sort of acronym, composed of the initial letters or sounds of "radio detection and ranging." Acronyms are so very numerous in technical talk and writing that some companies publish glossaries to help newcomers find their way around. To list a few examples: maser, JATO, sonar, shoran, tacan, NASA, lox, and dear old STWE, which was variously pronounced.

True acronyms are in the form of recognized, standard words, such as DEW and SAGE, and all are meant to be pronounced as words. An illegitimate half-brother is the *abbreviation*, which is spoken only as a series of letters: AM, FM, a-c, rpm, r-f, OD, VFR, uhf, psi, ppm. Some of these in time seem to lose their original identity as short forms and acquire word status in their own right, as has "rpm," for example, in "A large rpm is necessary . . ." I'm told that crew chiefs and mechanics even say "rpm's per minute." (We editors can change such constructions at every opportunity, but chances are that we fight a losing war, just as we do in "data is" and "a distinct phenomena.")

CONVERSION PATTERNS

All of the shortening patterns illustrate our constant attempts to streamline our language, but conversion patterns are even better examples since they generally don't call for the creation of a new word form—an old one is just given a new meaning.

Possibly the most frequently used of these patterns is what we might call *functional change*. The word "wall" began life as a noun, let's say, but after a while someone got tired of saying "Put a wall around the town." He said simply, "Wall the town." And the noun became a verb. Then a tree grew up till it was as high as the wall—wall high, that is, and wall became an adverb. Then a picture was painted on the wall, and what kind of picture was it? A wall picture, of course, and there we find

an adjective. And on and on—it's endless.

This phenomenon occurs so frequently that it would be idle to list many examples, but I think I can show with *one* how our language changes almost immediately in response to need. In none of the four desk dictionaries nor in Webster's Unabridged in my office is the word "orbit" listed as a verb; yet how would anyone today describe what the Explorers and Vanguards and Sputniks are doing? They're *orbiting*, of course. And no one questions this use of the word—not even we editors.

Ranking with functional change as one of the most frequently used patterns of conversion is *semantic change*. There are a number of different ways words change meaning, and we cannot go into all of them here, but we will take "wall" as an example. In all the uses mentioned so far it refers to a real, physical object; there is, however, another set of meanings in which it takes on a figurative meaning based on analogy. We freely use words in new contexts so that they take on different meanings, and common words like "run" can acquire a hundred or more distinct, definable meanings, many of them quite technical and esoteric.

Another form of conversion takes place when a *proper name* is established as a regular word, eventually with lower-case spelling, as diesel, angstrom, ampere, volt, ohm, and so on. The most recent additions to this list are "Mach," "Stapp," and "fermi." The last, by the way, is both a unit of measure (10^{-13} cm) and a level of electron energy, both units being frequently used in nuclear physics.

The final form of conversion to be discussed here is that which occurs when a *slang* or *shoptalk term* becomes accepted as a standard word. Not many of these conversions take place, incidentally, but when they do, they create most unusual — even fascinating — words.

The one I first became aware of so startled and amused me that I'll never forget it: In nuclear physics the unit of measurement of the probability of interaction between neutrons is expressed in terms of square centimeters, but there aren't many centimeters in a neutron; in fact, the unit is 10^{-24} sq cm. This figure kept cropping up in nuclear physics, and it needed a name, a name expressive of the size of a neutron which is the target of another neutron flying randomly toward it through the vast interatomic spaces. What did some original ironic genius call it? A *barn*. Doesn't that immediately call to mind ". . . can't hit the broad side of . . ."?

Barn is now the accepted name for the unit, I understand, but my colleagues and students tell me that as physicists go further and further into the insides of the atom, they need smaller and smaller units of measure. So for 10^{-36} sq cm, somewhat smaller than a barn, they use "shack," although this is not yet really legal.

Also from nuclear physics and nuclear engineering comes another of my favorite terms. I might go back in history a bit to explain this one. When the first controlled atomic reaction took place under the bleachers in Chicago, the emergency procedure planned in case the reaction ran away involved a man standing with an axe ready to cut a rope which suspended the control rods just above the pile. In later years, more sophisticated reactors mechanized this operation so that the watching man had only to push a button to start the shutdown, and we might expect the usual literal compound, the shutdown button, to develop. It didn't, I'm happy to say; that button is known as the *scram* button today. Doesn't that make pictures for you? (The word has developed, incidentally, so that one can now also *scram* a reactor.)

Somewhat like the barn, another appropriately named unit of measure showed up after scientists developed super-accurate methods of measuring time. In dealing with the events going on in a hypersonic shock tube or in a nuclear radiation test facility, they needed a unit a little less cumbersome than the second or even the microsecond; they found themselves speaking often of hundredths or even millionths of a microsecond, which is, of course, a millionth of a second. So for 10^{-8} sec we have the name "a shake," and that immediately suggests "two shakes of a lamb's tail." In trying to run down the origin of the name, I learned that it started with the scientists at Los Alamos and that one description of it is that it is half the width of a plot of yield versus time of an atomic bomb burst; thus, we can infer that a bomb explodes in about two shakes.

The name for a millionth of a microsecond, or 10^{-12} sec, although not quite as completely accepted as the shake, is "wink." Something happens pretty fast when it happens in a wink. I am also told that 10^{-15} sec is called a "tick," that 10^{-18} is a "quiver," and that 10^{-21} is a "semiquiver." But these are still pretty restricted in use.

I might mention one other unit: a "jerk" is defined as the unit rate of change of acceleration. It wasn't much needed before we got to playing around with rockets and thinking about putting people into them. We had velocity, in feet per second; and we had acceleration, in feet per second per second, or in *g*'s, another convenient unit; but until recently we didn't have enough power to cause great changes in the rate of acceleration. Now, however, aerospace medics worry not only about the *g*-load on passengers but about the rate of increase of *g*-load — the jerk, in other words.

INVENTIONS

With all of these converted terms available the opportunity for inventing a brand new word for a previously unnamed object or concept does not come along very often, even in modern science, but a few examples will show the ways the word-coiner's mind operates when it gets a chance.

For instance, we might consider the word "neutrino." It is clearly an affectionate diminutive form of the word "neutron," probably Italian in origin. It is not surprising, then, to find that the neutrino was named by the famous Dr. Enrico Fermi, that it is indeed diminutive, its mass being only 1/100,000 that of the smallest atom, that it carries no electrical charge, and that teams of scientists worked 25 years after its existence was theoretically proved before they experimentally confirmed its presence.

Again, the whole family of recent names for rockets, weapons, and satellites shows both poetic aptness and literalness: contrast Atlas and Explorer, for example.

A final group shows a certain amount of ingenuity but not a great deal of imagination. A "farad" is, you know, a unit of capacitance based on the name of Faraday, but it happens that very often a circuit equation calls for

the reciprocal of capacitance. To simplify the job of solving the equation as well as the job of setting it in type, a new symbol was developed: $s=1/c$, where c is capacitance in farads and s is the reciprocal of capacitance in "darafs," i.e., a daraf equals a farad inverted.

Similarly, the reciprocal of resistance is also often needed, and since resistance is measured in "ohms," the reciprocal is naturally "mho." But that is not the whole story: by extension, the symbol for ohms—logically, omega, Ω —is also inverted to symbolize mho: ℧ Likewise, the symbol for inductance, L, is inverted to form gamma, Γ, the inverse of inductance.

There are, of course, other forms of invented words, but this sample is perhaps sufficient to give their flavor.

CONCLUSION

These patterns of word formations are in evidence almost daily. It is our duty as professional word handlers to be aware of them. After all, most of us are regarded by our colleagues as experts in the use of language. We are consulted, often even respectfully, about such important matters as the proper placement of a comma, the correct spelling of a word, or the best way to say something. It behooves us to be able to explain also the origin of a new term—if not in the office, then surely at the next cocktail party. We have a reputation to maintain. Ω

About the Author . . .

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Editorial

This editorial is concerned with two aspects of STWP: the recent convention and the new format for the *Review*.

The San Francisco convention was a memorable affair for many reasons. Two of the most important reasons were the beauty of the city itself and the fine job done by the entire convention committee. However, if we are going to make significant progress as an organization, we must learn from our past mistakes and there were several noticeable problems at this convention as there were at earlier ones.

One of these is the question of the panel discussions. In the period allowed to discuss a complex topic, more time should be permitted for each individual speaker. From the panels with which we were connected, plus the ones which we observed, there did not seem to be enough time for an individual speaker to really probe deeply into his topic. The result is a superficial treatment of a meaningful problem. Perhaps the answer to this is to limit the number of speakers on the panel to no more than three so that a discussion in depth might be permitted. Perhaps another answer is to circulate abstracts of the panel discussions before the convention so that the audience can be prepared with questions. A possible extension of this idea is to have the subjects and speakers announced far enough in advance that the membership could send questions to a central clearinghouse for the prospective speakers. This would help the speakers to guide their talks in specific areas of interest.

Another significant improvement in convention arrangements would be a more complete list of available hotel accommodations sent out with the preregistration forms. This is commonly done for meetings in other professional organizations and permits a wide choice of hotels with a corresponding reduction in the cost of convention participation. This could well broaden the attendance at subsequent conventions.

Still another problem is one of recruiting. Some better means of conducting this activity must be found. There is no longer a question of whether or not recruiting is desirable at conventions. It does go on and it will continue. Some means of communication must be found for the best interests of STWP, the recruiting organizations, and the recruitees.

The second purpose of this editorial is to explain the changes of the *Review* format. These are the result of careful deliberation and planning. The changes were made with this issue because, for the first time, the magazine is being printed in Pittsburgh. This was an appropriate time to make these changes, which increase the amount of material we can include in each issue without increasing our costs.

A single sheet questionnaire is inserted in this issue. We ask that you complete this and return it without identifying yourself or your company so that we may compile a composite readership viewpoint. Included in this questionnaire are items which form the basis for a readership survey. We would like to know what you think about the magazine, and we especially desire your suggestions for improvement.

You will also notice that this questionnaire includes items not related to the magazine. The purpose of these questions is to develop, if we can, some statistically meaningful data on the status of technical writers. While our membership is only a small part of the total number of writers, editors, and illustrators, these data should be interesting. If we receive a large enough sample, we will publish this material so that everyone can see in what direction our profession is heading.

ALLAN LYTEL

Technical Writing From the Spoken Word

Meta Ellis

THE SPOKEN WORD *may prove invaluable in accumulating data for technical reports, papers, articles, and proposals. In the technique described in this article, the individual being interviewed organizes the material for the writer; the technical writer merely deciphers his notes and selects what is germane to his subject. The article brings out the importance of the technical writer being a good listener.*

WORDING THE OUTLINE

Nearly all books on technical writing advise starting with a detailed outline. I don't. I start with the spoken word.

No matter what you are asked to write—report, memo, brochure, news story—your supervisor first has to tell you about it. He outlines broadly and verbally what he wants. At this point you can trust his instructions to memory or write them down. I usually do the latter—key words, phrases, sentences. You've got an outline!

On second thought, you may wish to rearrange "his thinking" or elaborate a little, in topic form, to get your own working structure, but nothing should be tied down too firmly yet.

LET THE "WRITER" SPEAK

The next step, the books say, is to gather your information. This time I agree. How else can you write until you know all the facts, and some of the fancy, about your subject? You want to gather *all* the information you can—tempered only by relevancy and time allotted. Again, I start with the spoken word, which is the easiest and fastest way.

Usually department heads can give you the broad-brush coverage for each subject area. If they can't remember all the details, they'll refer you to subordinates who are following the narrower aspects more closely. But the important thing is that each individual to whom you talk is organizing the material for you from the myriad of facts in his mind. You've put him "on the spot" by asking questions. He is doing his best to filter all the details through his mind, and is giving you the pertinent facts—clearly and concisely.

While he is talking, you are writing in true reporter fashion. Gathering the facts—not coldly, impersonally—but person-to-person. His words are vivid, alive, active. You are capturing them, out of mid-air, and putting them on paper. His words will stay that way—vivid and alive—if you are only careful in your final writeup. Besides, your informant is choosing the right words for you, more or less; at least he furnishes the correct nouns and verbs to describe the situation. You can fill in the rest later, remembering where to exercise caution or exude enthusiasm from the tone of his voice and his qualifying remarks that you don't bother to take down.

He may go to his file for details of test results and suggest you copy some of the material. He may check a value or two regarding the exact concentration, weight, etc., but he is "writing" your material for you in a most painless way. You may even walk away from the interview with an armload of reports, but you'll know roughly where to look for the answers—because he has told you what is important.

ORGANIZE THE MATERIAL AND THEN SOME

And so you return to your desk after a session of information gathering. You have a pile of notes—and a pile of assorted papers, memos, and reports. What next?

Organize the material logically. Decipher all those notes and fill in the blanks with a little literature searching. Take only what is pertinent from the written material. You already have the essence of what you want to say in that garble of broken sentences, short phrases, and choice words—the notes. Preserve their personality.

As you are organizing the material, you can now make a more detailed outline. You can begin to see how the pieces fit. You can blend one person's approach to the subject with another's. At this point you may even want to discard the original skeleton outline, if you can convince your supervisor of a better approach. You now have a "feel" for the subject.

Out of this maze of disjointed notes come some sparkling section headings. You didn't scratch your head for hours trying to think of the few meaty words that will describe the material to follow. There they are, popping out of the page, amidst the clutter. Your informant was kind enough to say them during the course of the interview.

IT'S ROUGH—SO POLISH

After organizing the material, and tying it together with the usual connectives, qualifying adjectives and adverbs, articles and punctuation, you have a gem in the rough. The next step in achieving a jewel of a manuscript is

IBM 7090 Digital Computer

We now have two IBM 704's. These will be replaced. The 7090 is approximately six times faster than one 704. The tape speed 4:1 faster than the 704 tape speed. The actual calculations are 6:1 faster, and the input-output on the 7090 can go on at the same time the calculations are being made. This was not the case with the 704.

We have tripled our capacity. Both 704's were being used six days a week, three shifts a day. All work can now be accomplished in one shift. There is an overall decrease on the rental paid, over both 704's. Should mean a 35% reduction in cost to do a specific problem. We can do our present jobs faster and cheaper than before, and we can do much larger jobs in the future.

Besides the computer, we have designed new operating and programming systems for use on the computer, which should also increase the speed of operation. We serve all the plants—Azusa, Downey, Nucleonics, as well as Sacramento. Kismet is the name of the new operating system. Prints at 500 lines a minute.

Speed—can add 230,000 ten decimal digit numbers in 1 second. The 7090 is almost completely solid state, only three electronic tubes in whole complex. About 4000 tubes in 704, and this is the main problem in maintenance. Reliability of the 7090 should be much better; overall reliability of the 704 in three years was 92%. Takes about the same area, but uses only half the power and air-conditioning.

Now—Better Computer Services For Aerojet Plants

The new IBM 7090 digital computer being installed at the Liquid Rocket Plant to replace two IBM 704's, will triple the capacity of the Computer Services Division. This group now provides all computer services for the Sacramento plants, as well as special services to Azusa, San Ramon and Downey plants.

The new machine is approximately six times faster than one 704, or, in other words, it can accomplish the same work in one shift that formerly required three shifts a day with the two 704's. Approximately 230,000 ten digit numbers can be added in 1 second. Yet, despite the greatly increased capacity, the 7090 requires only half the power, half the air-conditioning, and less floor space than a 704.

Cost per problem is expected to drop by 35%. Reliability is expected to increase. Present 704's have an average reliability of over 92%; however, since the 7090 has nearly all solid-state components (only three vacuum tubes as compared to 4000 for the 704), higher reliability is anticipated.

A new operating and programming system, called "Kismet," has been designed by the Computer Services Division to keep up with the pace of the 7090.

Figure 1—Example of Technique. Left-hand column is composed of notes taken by writer; the other column is the resulting final copy that went to the publisher of a company-sponsored newsletter.

to cut a little here and there, polishing each section until it meets with your approval.

When you are satisfied with your handiwork, give it the acid test. Submit each section to the originator—your informant. These are the crucial moments. More than likely, you will have to defend some of the statements you have made using his words. Or he may have changed his mind on a point or two after reading your writeup of his original statements. Let him change them without argument. He is the expert, and his is the reputation at stake. But the chances are he will like most of what he has said, and you have written, providing you exercised care in preserving the essence of his thoughts.

Sometimes the "author" may need supervisory approval before returning the section to you. His supervisor may not agree with him on the presentation of the subject matter. The section may have to be rewritten. If so, interview the supervisor, if you can, to get his opinions on what should be said and how. The next time he sees this section it ought to meet with his approval, with perhaps minor changes, for after all, you have used *his* words in the rewrite.

THE FINAL WORD

Compile the sections and you then have a news release, article, brochure, report, or proposal. You are ready to let your supervisor read it. He'll want various facts substantiated, you can be sure.

"Are you certain the Isp of the second stage engine is 311 lb-sec/lb at altitude? In a meeting the other day I heard it was now 312."

Give him the source of your information and offer to check again. Facts change and events move swiftly in today's rapidly advancing technology. You may be wrong.

He may not agree with some of his colleagues and the answers they have given you. (One of the hazards of being a technical writer.) However, these differences are usually resolved at a higher level than yours, and generally will be settled by a telephone call from supervisor to colleague. A major or minor rewrite at this point is just part of the game. A colleague may even win your supervisor over to *his* line of thought.

IMMORTALIZED IN PRINT

The rest is history in the making. You've captured the spoken word, organized the material, written the copy, and obtained approval. A typist can take it from there. The easiest, surest way to get a manuscript through the mill, I say, is to become an expert reporter. Technical writers must be good listeners. Ω

About the Author . . .

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Miss Ellis has a B.S. from the University of Missouri and an M.S. from Purdue University, with a major in textile chemistry from both. She is an active member of STWP, American Rocket Society, American Association for the Advancement of Science, Sigma Delta Epsilon, and the American Council on Women in Science.

Responsibilities of Writers and Editors to Readers*

J. Cromwell Young

WHEN WRITER, *editor, printer, and publisher work together, with an understanding of the role each can most effectively play, the responsibilities of each to the reader are best discharged. This article develops the four freedoms that an editor must have: freedom to serve the reader, and freedom from writer dictation, printer dictation, and publisher dictation.*

In discussing responsibilities of writers and editors to readers, my remarks will be confined to writers and editors in noncreative fields—if you will forgive the slur. In other words, I am making no effort to suggest the responsibilities to the reader that might be incumbent on a James Joyce or a Maxwell Perkins.

What I have to say will be tied quite closely to government and encyclopedia practice, not because I wish to boost or knock either activity but because my sixteen years as a government editor and five years as an encyclopedia editor have pretty well limited my experience to these fields. And as an editor, I will stress the editor's responsibilities more than the writer's. No attempt will be made to draw any clear distinction between technical writing and editing, and plain, ordinary, everyday writing and editing—for the simple reason that I am not sure just where the difference lies. My writing and editing have been almost exclusively on behalf of the general public, and consequently I shall have to attack the problem from that angle.

One word about the writer. I would say that the use of the plural "responsibilities" is out of place in his case. The writer's sole, his only, responsibility is to the reader. That responsibility is discharged in much the same way that an editor discharges his responsibility to the reader.

EDITOR'S RESPONSIBILITIES

The editor, a middleman, is a creature of several responsibilities. He has a responsibility to (1) the reader, (2) the writer, (3) the printer, and (4) the publisher. These could be expressed in somewhat the same way as Roosevelt's famous Four Freedoms. If I remember correctly, there were two freedoms *to do* something and two freedoms *from* scourges, like want and fear. In drawing my parallel I'm willing to soften the scourges angle, but I would suggest that the editor, to discharge his responsibilities properly, must have four freedoms as well—but three of these would be freedoms *from*.

If the editor is to have (1) freedom to serve the reader, he must enjoy (2) freedom from writer dictation, (3) freedom from printer dictation, and (4) freedom from publisher dictation. Of course all these must be within reasonable limits.

This could be put another way: The editor's responsibility to the reader can be discharged effectively only if he is provided with a workable independence from writer, printer, and publisher. These freedom *froms* are, of course, predicated on the fact that the editor is already aware of his obligations *to* these three—obligations that he assumes in return for his freedoms.

PRINTER DICTATION

Printer dictation is perhaps the least important of my four freedoms because some editors do not deal directly with printers, and when they do, such dealings are confined to text proofs. But where dealings are more extensive, it is well to realize that printers as a group are essentially and extremely conservative, helpful as they often are. There are some things they insist they just cannot do, until they are forced to do them. (Of course, sometimes after they have been forced to try something different, they can still, with reason, insist it cannot be done.) But there were a number of occasions in the production of *Canadiana* when we were able to improve results by enforcing our will. Naturally, the printer must be accommodated in so far as possible, but at the same time he must be made to realize the extent or limits of his authority.

PUBLISHER DICTATION

Publisher dictation is another matter. (In the civil service, I suppose the publisher would mean the minister or deputy minister.) This type of dictation has to be faced both inside and outside of government, and it is the type against which an editor's defenses are weakest. After all, the boss, whether he is a private publisher or a deputy minister, has the final say. In this area I can recommend no more than the art of gentle persuasion weighted with the respect and confidence the editor has previously acquired. Neither the dicta-

** Adapted from a talk given by the author to the Eastern Ontario Chapter of STWP on March 10, 1960.*

tion springing from political pressures nor the dictation springing from financial pressures is wrong in itself, provided it does not lead to a permanent distortion of the editor's perspective. An editor needs the assurance that on questions of editorial policy he is going to find a sympathetic ear, not a suspicious one, when he discusses such questions with his publisher.

WRITER DICTATION

In the sphere of writer dictation the ideal relationship is one of mutual trust between writer and editor, each working for the benefit of the reader. What I mean by writer dictation is the situation where the writer has decided that not only *what* he has said but *how* he has said it is sacrosanct. This situation I have found is more apt to arise when the writer is a so-called (either self-styled or genuine) expert in a scientific or technical field—and among this breed the most dogmatic concerning the sanctity of their texts are invariably those least proficient in the use of the language. Expertness with them seems to lap over, and you find the doctor or the biologist claiming omnipotence in the craft of writing and editing. It seems unfair because I don't believe you find many editors staking claims to authority in other fields.

Incidentally, I have seen the handwritten manuscripts of some of our writers in the technical and academic fields, as well as the quite readable printed volumes that have brought them international acclaim, and many of them owe much to their editors.

ARTIFICIAL DICTATION

But to get back to this impasse that can develop between the professional scientist or what have you, who is a nonprofessional writer, and the editor. My feeling is that the underlying cause, at least among medical men and academics, is the fact that when supposedly writing for the public, they are really writing with 1⁹⁄₁₀ eyes on their colleagues in the field, leaving only ¹⁄₁₀ of an eye for 99⁹⁄₁₀ of the prospective audience. I have often heard the writing doctor say in effect—just in effect, he would never put it so bluntly—"My colleagues will look askance at me if I write in plain, simple, easy-to-understand English, using images and examples that will convey real meaning to the general reader. I must prove I am thoroughly at home with all the latest technical words." I think that is nonsense, chiefly because it is an insult to the general reader and secondly because I am almost positive that the most dyed-in-the-wool technical man likes to read English once in a while too. Unfortunately, if the academic man writes a popular article—and that word "popular" is always said with such an air of condescension—he runs the risk of losing caste.

I have agreed on two or three occasions to shelve my editorial responsibilities in order to obtain the services of a top expert who was willing to write only if his copy appeared as he wrote it. They have not been happy occasions and I must admit that, as an editor, I abdicated. In compromising the essential freedom from writer dictation, an editor fails in his responsibility to the reader. Abdication, voluntary or otherwise, does not pay in the long run.

Ideally, and I think in practice in most cases, an editor is able to work *with* a writer, with advantage to both and with particular advantage to the reader. I would suggest only that where the desires of the writer and the best interests of the reader clash, the editor must use whatever authority he may have, whatever strength of character he may possess, to weigh the scales in favor of the reader.

RESPONSIBILITIES TO READERS

Having disposed of writer dictation, printers, and publishers, I have reached the subject of this article: responsibilities of writers and editors to *readers*. However, what I have said covers most of the responsibilities to the reader. For, given a climate in which the editor can work free from unnecessary restraints imposed by printer, publisher, or writer, and given a climate in which the writer can work free from unnecessary restraints imposed by editor or publisher, either editor or writer is in a position to communicate satisfactorily with the reader—provided he is competent. In other words, if the editor or writer is able to surmount the difficulties I have suggested, he is in a perfect position to exercise his talents fully and to discharge his responsibilities to the reader.

Those responsibilities are easily definable. They involve the communication of a message, of whatever type, to the reader—correctly, clearly and concisely, and with a certain grace of style if that is possible. Much of this is bound up with the mechanics of our profession, such as style, accepted practice, and grammar.

MECHANICS ESSENTIAL TO CLARITY

The mechanics are quite important if we are going to achieve clarity, a quality that every reader has a right to expect. I agree wholeheartedly with the writer of the Royal Bank of Canada Monthly Letter—who is, in my opinion, the finest essayist practicing in Canada today—when he said, "It is unjust, it is immoral, and it is unbusinesslike not to know what you mean, to shrug a careless shoulder and say that you write what you write and the reader should make his own interpretation." The achievement of clarity is not easy. Horace wrote, "You that intend to write what is worthy to be read more than once, blot frequently." I think it was Sheridan who said:

> You write with ease to show your breeding,
> But easy writing's curst hard reading.

CONTENT MUST BE UNDERSTOOD

I said that the responsibilities of editor and writer in communicating a message to the reader call for insistence upon a product that is written correctly, clearly, and concisely. When I say correctly, I am not thinking of grammar or syntax, but of content. There is no point in the editor and writer working on material—whether it is writing, rewriting, or patching—if the content is not completely understood. As stated in one issue of the *STWP Newsletter*, "Make sure that you understand your subject before you start to write. Don't ever let yourself be trapped into having to say, 'Well, I didn't understand it either, but that's what the man said.' "

READER MUST BE UNDERSTOOD

Too often the reader is regarded as a single personality, frequently in the image of the writer or editor. This may be fine in creative writing, but I think it imperative that the technical writer and editor know his reader—his size, his age, his interests. *How* the medical man writes for his colleagues is one

thing; *how* he writes to enlighten the public is something else again. *What* he writes—the content, the message, the information—may be the same thing, but the "how" must be different. What a medical man writes for the information of his fellow doctors would be no more intelligible than Greek to the grade-school pupil. What the Department of Agriculture geneticist writes for his fellow geneticists in Canada and abroad means little to 4-H Club members. This is not a question of writing *down* or writing *up;* it is a question of writing *to.*

One day I was driving my youngest daughter and her friend to school. As we turned a corner where new traffic lights with control buttons for pedestrians had just been installed, my daughter said, "Look, Nancy, they've got buttons on those posts now." Nancy replied, "Yep, they're for the Presbyterians."

Too often we are getting our message across to the Presbyterians when it is the pedestrians that (figuratively, of course) we are trying to hit.

I know that this is not as simple as it sounds. Having been involved in the preparation of an encyclopedia that attempts to interest everyone from Grade 7 to infinity, I am under no illusions. There invariably has to be compromise. The important thing, I think, is at least to know beforehand the nature of your reader. If he is a broad, broad reader (the general population, say), I suppose you aim for his middle and hope the shot will spray sufficiently to cover the target.

I have suggested that writer and editor can best discharge their responsibilities to the reader by working in an atmosphere of efficient freedom and then using that freedom to perform their appointed tasks to the best of their abilities. Among all those involved in the process, I place the end-man, the reader, first. After all, the product is designed for him and if he loses out, no one gains.

RESPONSIBILITY TO COOPERATE

In presenting these remarks in this way, I may seem to have overemphasized the differences between writer and editor, between editor and publisher, and so on. I have deliberately underplayed the much more important areas of cooperation between all concerned. I have done it purposely to highlight what I consider a few important points—my four freedoms. But I'm willing and happy to conclude with the comment that it is when writer, editor, printer, and publisher work together, with an understanding of the role each can most effectively play, that the responsibilities of each to the reader are best discharged. It is then that the reader is placed in the position he should occupy—on top. Ω

About the Author . . .

J. CROMWELL YOUNG *has been for the past year Executive Editor of* Encyclopedia Canadiana, *after five years as Associate Editor. He began his career as a reporter for the Oshawa, Ontario,* Daily Times *and became editor of the Fort Erie, Ontario,* Times-Review. *In 1938 he joined the Federal Department of Pensions and National Health (now National Health and Welfare) as an editor and information officer until the end of 1954, except for two years' military service.*

Mr. Young is a member of STWP, the Ottawa Press Club, Canadian Public Relations Society, Canadian Education Association, Canadian Historical Association, Ontario Historical Society, Hudson's Bay Record Society, Royal Canadian Geographical Society, and the National Publications Committee of the Boy Scouts of Canada.

Readership Survey

In an effort to improve our magazine, this issue contains, on page 17, a questionnaire directed to the reader. Only a few questions are asked, but they have been selected to summarize the likes and needs of the respondent in terms that will be the simplest to correlate. If they are answered by enough readers, they should be of great help to the editors and to the Editorial Board in shaping the future publication policies of the *Review.*

The first part of the form is devoted to this issue: how you, the reader, rate the articles and features in relative interest and how you feel about the new format. The second part asks for a brief listing of the types of articles and features you would like to see in the *Review.*

The third part covers your position. Although on first consideration this information may appear to have little to do with the magazine, a closer look will reveal a real basis for determining the functional needs of our readers. This section of the questionnaire has a secondary purpose: to gain more information on the present status of technical communications personnel. Such data, if they represent a significant portion of our readership, should form the basis for conclusions on the composition of our profession.

To encourage our readers to take part in the survey, we have made the form as simple as possible. It can be completed in a few minutes. After it has been torn from the magazine at the perforated line, it can be folded and taped together; no envelope is required.

Your contribution to the survey will be greatly appreciated.

THE EDITORS

STWP REVIEW READERSHIP SURVEY

Please complete and return this to the address on page 18. You need not sign this form nor indicate the name of your company. Results of these questions will be published in October if enough forms are returned to provide a significant sample of STWP membership.

THIS ISSUE

1. The articles rate as marked. (1 is most interesting, 5 is least interesting)

The Slide As a Visual Aid ( ) Technical Writing from the Spoken Word ( )

Patterns of Word Formation ( ) The Dictionary as a Writer's Tool ( )

Responsibilities of Writers and Editors to Readers ( )

2. The features I like best are: (same rating scale from 1 to 4)

News and Views ( ) Letters ( ) Editorial Notes ( ) Book Reviews ( )

3. I feel the new format is .....

.....

.....

FUTURE ISSUES

1. I would like to see more articles about (1) .....(2) .....(3) .....

2. I would like to see features, every issue, about (1) .....(2) .....(3) .....

POSITION DATA

My company's business .....

Total employees in my plant ..... In Publications .....

I am a ☐ Writer ☐ Editor ☐ Illustrator ☐ Manager

My job title .....

My salary range: $4000-5000 ☐ $5000-6000 ☐ $6000-7000 ☐ $7000-8000 ☐ $8000-9000 ☐
$9000-10,000 ☐ $10,000-11,000 ☐ above $11,000 ☐

Name of my publication group .....

This group is part of: Engineering ☐ Marketing ☐ Other .....

This group writes and illustrates: Instruction books ☐ Proposals ☐ Reports ☐ Brochures ☐
Advertising ☐ Articles ☐ Other .....

The head of publications has the title of .....

He reports to ..... Total number of people in my group .....

This number is divided as: Writers ___ Illustrators ___ Reproducers ___ Editors ___ Photographers ___
Typists ___ Others .....

The writers report to: Editors ☐ Writing Supervisors ☐

The following are a part of our publications group: Writing ☐ Typing ☐ Reproduction ☐ Library ☐
Editing ☐ Illustration ☐ Photography ☐

Our company has separate writing/editing groups for: Instruction Books ☐ Reports ☐ Proposals ☐
Brochures ☐ Other .....

Note: After completing this form, you may simply tear out, fold, and tape. No envelope is required.

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PLACE
4¢
STAMP
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Mr. Allan Lytel, Editor
STWP Review
Avco Corporation
Glendale-Milford Road
Cincinnati 15, Ohio

The Dictionary as a Writer's Tool

Allan Lytel

TO THE TECHNICAL *publications specialist, few tools can be of greater value than a good dictionary—plus the knowledge of its organization, basic viewpoint, and limitations. This article describes the Merriam-Webster, the Funk and Wagnalls, and the Oxford dictionaries and develops the historical background of each of them.*

INTRODUCTION

A dictionary, from the Latin *dictionarius,* is a special type of book which alphabetically lists the words in a given language, defines them, and gives their correct spelling and pronunciation. Complete dictionaries also give other information such as the part of speech and the derivation of each word.

In addition to the body of the dictionary, there are several other important parts. A gazetteer is a geographical dictionary. In it the names of cities, countries, and geographical points such as lakes, rivers, streams, mountains, and islands are given. A biographical dictionary is a compilation of data concerning the important people of history together with a short sketch of their life and important works. Forms of address used in the dictionary explain the correct way to address important personages such as the president, royalty, members of Congress, church dignitaries, and the like. A list of signs provides the names and meanings of the signs and symbols such as those used in proofreading, mathematics, music, business, and medicine. A list of common English names explains the origin of first names. Foreign words and phrases is a section devoted to the explanation of foreign expressions. Other items commonly found in large and well-prepared dictionaries include punctuation, abbreviations, rhymes, synonyms, and antonyms.

GENERAL HISTORY

According to one source "the Assyrians wrote a dictionary of their language more than 2500 years ago. The Arabians, Greeks, and Romans wrote only rare or difficult words in the dictionaries which they produced."[1] The rebirth of interest during the middle ages in Greek and Latin literature led to the need for a lexicon, which is a dictionary giving translated meanings of words.

Apparently the earliest attempt to catalog all the common words in the English language was the work of Nathan Bailey in 1721. The famous dictionary of Samuel Johnson appeared in 1755.

Three works are the subject of this article. These are Funk and Wagnalls', Webster's, and the *Oxford English Dictionary.*

Modern American dictionaries stem largely from the publication in 1828 of Noah Webster's *American Dictionary* of the English language. Many revisions of this book have appeared. It is now known as *Webster's New International Dictionary* and contains over 3200 large pages.

Webster's *Compendius Dictionary of the English Language* was published in 1806, and in 1807 he published a *Philosophical and Practical Grammar* of the English language. In the same year he started working on the dictionary in France and England. The manuscript was finished at the University of Cambridge in England.[2] The *American Dictionary,* which was first published in 1828, was in two volumes with 12,000 words and about 40,000 definitions that did not appear in any earlier dictionary. A separate English edition was published. The second edition of the *American Dictionary* was published in 1840 with corrections and new material.

The *Oxford English Dictionary* was started in 1884 and completed in 1928. It is a historical monument and contains 430,000 definitions as well as 1,827,306 quotations. Because of its complete word histories and its quotations the Oxford dictionary is a favorite of scholars.

Funk and Wagnalls' *New Standard Dictionary of the English Language* is another important work. It was first published in 1893. The new edition in 1901 contained some 13,000 new words; it was followed by the 1913 edition. The later 1947 edition has a vocabulary of about 450,000 words including some 65,000 proper names.

Apparently the first dictionary of which there is an accurate record was prepared around 1225 by John Garland, the English scholar. His book *Dictionarius* was a list of Latin words grouped according to subject rather than alphabetically. It was designed for use in teaching.

Dictionaries have grown in size as our language has expanded. At a recent

conference on communications, this was said: "To complicate matters still further, but also to keep pace with the increased bulk of things to be communicated, is the enormous growth of the English language itself . . . There were 58,000 words in the first English dictionary, compiled by Dr. Samuel Johnson and published in 1755. The first American English dictionary, edited and published by Noah Webster in 1828, contained some 70,000 words. Today's largest unabridged dictionary will have over 600,000 words—one million if technical terms are admitted. Thus we have a tenfold increase in something over 100 years. And now Professor Albert Marckwardt of the University of Michigan predicts that the next 100 years will bring a total English vocabulary of over two million words. By this time a simple dictionary will be in ten volumes like an encyclopedia!"[3]

Dictionaries have, of course, followed the development and expansion of the English language. Their origins may be considered deep in history, but the early works in English and Latin will serve as a proper starting point.

EARLY ENGLISH DICTIONARIES

One of the early dictionaries, *Promptorium Parvulorun,* was a famous book prepared in 1440 by the Dominican friar Galfridus Grammaticus (Geoffrey the Grammarian). More than 12,000 English words, together with their Latin equivalents, were listed and this dictionary was important since, while it was written before the invention of printing, it was published later in 1499 at the London press of one Richard Pynson.

Many of the early dictionaries had unusual names. In 1500 one Wynkyn de Worde published the *Ortus Vocabulorum,* which is, by generous translation, a garden of words. Both the Latin words and their English translation were included in this book. Like the earlier books of its type this was also designed for the teaching of Latin.[4]

The *Abcedarium Anglico-Latinum pro Tyrunculis* has sometimes been called the first actual English dictionary. It was compiled by Richard Huloet and printed in England about 1552. While the title of this book indicates it is "for young beginners," it actually was prepared for others. The book contained some 26,000 words, and it was a popular as well as expensive work.

In 1570 Peter Levins, a Yorkshire schoolmaster, prepared the *Manipulus Vocabulorum,* which is literally "a handful of words." This dictionary contained some 9000 entries. It was prepared, according to Levins, so that "the price being little, the poorer sorte may be able to bie it," and he said the book was a "dictionarie of English and Latine wordes, set forth in suche order, as none heretofore hath ben . . . necessary not only for scholars that want variety of words, but also for such as used to write in English metre."[4] Thus the words were arranged not according to their first letters but rather by the spelling of their syllables so that they may be used by a poet. This was the first rhyming dictionary on record printed in English.

John Baret published a dictionary in 1573 known as *An Analvearie,* which is literally "a beehive." According to the author, "about eyghteene years agone, having pupils at Cambridge studious of the Latin tongue . . . perceyving what great trouble it was to come running to mee for every word they missed . . . I appoynted them . . . every day to write English before ye Latin, and likewise to gather a number of fine phrases . . ."[4] In Baret's book the English word has with it an English definition, the equivalent word in Latin, and usually also the word in French.

Early dictionaries of the type and character discussed above were not dictionaries in the modern sense inasmuch as they made no real attempt to cover the language completely. Instead, they were compilations of the more difficult words in the language according to the viewpoint of the compiler or author. Among the seventeenth century books of this type was one in 1604 by Robert Cawdrey, *A Table Alphabeticall; The English Dictionarie,* in 1623 by Henry Cockeram (H. C. Gent); Thomas Blount's *Glossographia* in 1656; *The New World of English Words* by Edward Phillips in 1658; and Elisha Coles' *An English Dictionary* in 1676.[5]

EIGHTEENTH CENTURY DICTIONARIES

The eighteenth century was marked by the publication of Samuel Johnson's *A Dictionary of the English Language,* published in 1755. Predecessors of Johnson's in this century were John Kersey, who published *The New English Dictionary* in 1702, and Nathaniel Bailey, whose *Universal Etymological English Dictionary* was published in 1721. Bailey also published the *Dictionarium Britannicum* in 1730. This was enlarged in 1736.

It is said that Samuel Johnson used Bailey's works as one of his important references in preparing his monumental dictionary. According to the *Encyclopaedia Britannica,* "Johnson, a sort of lexicographical giant, undertook, with very little aid, a work which in modern times would be entrusted to a corps of editors, subeditors, and departmental experts numbered in the hundreds . . . Johnson, with the approval of many of his contemporaries, was expected to be a one-man academy, to set forth the English tongue in all its glory and, if possible, to crystallize it in a classic form. He hoped to do it all within three years; it took him nearly eight—little enough for such a mighty task."

Another milestone in the history of dictionaries was the *Critical Pronouncing Dictionary and Expositor of the English Language,* which was published in 1791 by John Walker. The influence and value of this work may be judged from the fact that over 40 editions were published, and the famous Pitman shorthand, developed by Isaac Pitman, was based on the principles in Walker's book.

The expansion of the public school system in the United States led to the need for better dictionaries, and in 1798 a schoolmaster in Connecticut, Samuel Johnson, Jr., brought out a book called *A School Dictionary,* which was a "collection from previous authors." This has the distinction of being the first English dictionary prepared or compiled by an American.

Other early American dictionaries include *A Selected, Pronouncing and Accented Dictionary* published by Samuel Johnson, Jr. and John Elliott in 1800 and the *Columbian Dictionary* published in the same year by Caleb Alexander.

THE WEBSTER DICTIONARY

Perhaps the most important name in the field of dictionaries in this country is that of Webster. Noah Webster published a *Grammatical Institute of the English Language* in three parts during the years 1783 to 1785. This

was a spelling book, a grammar, and a reader. It was a famous first and a pioneer book in American literature. For twenty years the royalties from this book were Webster's prime source of income while he was working on his dictionary. As an example of the popularity of his book, by 1861 it was selling more than one million copies a year. Webster also wrote in the political field including his sketches of American policy in 1785 and *The American Magazine*, which he started in 1788. He announced in 1800 that he was going to prepare a series of dictionaries and the first was published in 1806. Called *A Compendious Dictionary of the English Language*, it contained about 40,000 words, each with a short definition.

In 1828 Noah Webster published his masterpiece, *An American Dictionary of the English Language*. It first appeared in two volumes and has been revised and improved many times. The first edition contained more than 70,000 entries and became recognized as an authority in both this country and England.

Other dictionaries of this general period include the three issued by Joseph Emerson Worcester (1830, 1846, 1860); the *Oxford English Dictionary*, first known as *The New English Dictionary on Historical Principles*, completed in 1928 after 70 years of work; *The Century Dictionary;* an *Encyclopedic Lexicon of the English Language*, issued in 1889 in six volumes under the editorship of William Dwight Whitney; the *New Standard Dictionary*, first published in 1893-95; *The Britannica World Language*, 1932; *Dictionary of American English*, 1936-44; and *Dictionary of Americanisms*, 1951.

MERRIAM-WEBSTER DICTIONARIES

In 1828 the first edition of Webster's *American Dictionary* was published, followed in 1840 by an enlarged edition. Upon Webster's death in 1843 the publishing rights were bought by the G. & C. Merriam Company. They brought out a one-volume edition in 1847; this was reissued in 1859.

The version of Webster now known as the "unabridged" was published as a revision in 1864 with 114,000 words. A supplement was issued in 1879.

Webster's International Dictionary was published in 1890 and revised to include 200,000 words by the supplement of 1900.

The *New International Dictionary* appeared in 1909 with more than 400,000 words as an extensive revision with a great deal of new additional material. In 1934 the second edition was published.

A New Words Section was added in 1939 and this was later revised and expanded. This work is unquestionably the most famous, as well as the oldest, American dictionary and appeared in 1950 as *Webster's New International Dictionary of the English Language*, second edition, unabridged.[6]

Webster's New Collegiate Dictionary, first published in 1898, is based on the unabridged. It is part of a group of dictionaries published by Merriam. Others in the group, which includes the single-volume unabridged dictionary with 600,000 entries, are *Webster's Biographical Dictionary*, the 1700-page volume with 40,000 biographies; *Webster's Dictionary of Synonyms*, a volume of 944 pages; and *Webster's Geographical Dictionary*, a book of 1352 pages with 40,000 entries.

FUNK AND WAGNALLS

Funk and Wagnalls is a famous name in American dictionaries. The viewpoint which is represented is given by Dr. Isaac K. Funk, who wrote in the introduction to the original work, in 1893, "The chief function is to record usage; not, except in a limited degree, to seek to create it . . . The editors of the various departments have been urged to keep always in mind that the essentials of a good dictionary are comprehensiveness, accuracy, and simplicity."

Funk and Wagnalls' *New Standard Dictionary of the English Language* was first published in 1913 as a revision of the 1893 first edition. The new edition, in 1901, had 85 new pages containing some 13,000 new words, but the remainder of the book was printed from the same plates as the first edition.

The 1947 edition has a vocabulary of about 450,000 words, including some 65,000 proper names. It uses the simplest spelling where several forms are possible.

The *New College Standard Dictionary of the English Language*, based on the *New Standard Dictionary*, was first published in 1922. The latest edition was published in 1947.

A number of dictionaries are published under the name of Funk and Wagnalls. One, the *New Practical Standard Dictionary of the English Language*, is published in several editions, one of which is the Britannica World Language edition of 1954-1955. This is based on the *New Practical Standard Dictionary of the English Language*, published in 1946, 1952, and 1955. According to the introduction, "The series of successfully improved editions of Funk and Wagnalls *New Practical Standard Dictionary* dates back to 1893, when the first standard dictionary was completed.

"Through the years American dictionaries followed the pattern established by their English ancestors, limiting themselves largely to words of the English language . . . This special edition of Funk and Wagnalls *New Practical Standard Dictionary* meets these new requirements (of travel between countries). It represents the new approach to an understanding of not English alone but of other principal languages of the western world."

This dictionary is in three parts. The first part is the complete *New Practical Standard Dictionary of the English Language*. The second part contains the equivalents of commonly used English works in six different languages—French, German, Italian, Spanish, Swedish, and Yiddish. Part three contains six sections, one for each of the six languages and each in alphabetical order.

OXFORD ENGLISH DICTIONARY

The *Oxford English Dictionary* is a twelve-volume reissue, with corrections, of a *New English Dictionary on Historical Principles* in ten volumes. This was, in turn, based on materials collected by the Philological Society and edited by James A. H. Murray, Henry Bradley, W. A. Craigie, and C. T. Onions. The *Oxford English Dictionary*, which was published by Oxford, Clarendon Press in 1933, traces its own history back to 1857 and the encouragement by Richard Chenevix Trench, Dean of Westminster, which led the Philological Society to plan a new dictionary.

According to the dictionary itself, in 1895 "a new name for the dictionary was introduced, though no change was made on the title page. On the cover of

the section containing Deceit to Deject above the title, appear for the first time the designation the *Oxford English Dictionary* which was repeated on every section and part issued after 1 July of that year. The new name being more distinctive than the old has steadily come more and more into use . . . popularly the work is often referred to as Murray's, and the Philological Society, by a natural tradition, has continued to call it the Societie's Dictionary."[7]

The *New English Dictionary on Historical Principles* (the basis for the *Oxford English Dictionary*), edited by James A. H. Murray, was based on materials collected by the Philological Society and was published by Oxford, Clarendon Press, from 1888 to 1933. This monumental work in ten volumes is known under the several titles of *Murray's Dictionary, The New English Dictionary*, and *The Oxford English Dictionary*. It is designed for a different purpose from ordinary or standard English dictionaries.

The historical method is used to indicate and show the history of each word together with the differences in meaning, spelling, pronunciation, and usage at different periods of time. This enormous work includes many quotations from the published volumes of more than 5000 different authors, excluding only those words which have become obsolete by the year 1150.

Very full and complete information about each word is given: the identification of the word together with spelling, pronunciation, grammatical usage, specifications, status, earlier spelling, inflexions; morphology with the derivation; the significance of the word together with its historical sense; and chronologically arranged quotations to illustrate the sense of the word. The *Oxford English Dictionary* contains some 414,825 words and some 1,827,306 quotations. Because the dictionary was completed in 1928 it does not contain many of the newer and more useful words, but since its purpose is largely historical, the value of the dictionary has not diminished with time.

Abridgments of the *Oxford English Dictionary* include the *Shorter Oxford English Dictionary*, the *Concise Oxford Dictionary of Current English*, the *Pocket Oxford Dictionary*, and the *Little Oxford Dictionary*.

A Dictionary of American English on historical principles[8] is related to the *Oxford English Dictionary* in form, style, and content. It was edited by W. A. Craigie, coeditor of the larger work, in collaboration with James R. Hulber, Professor of English at the University of Chicago.

SUMMARY

Dictionaries are published in many and varied forms. According to Constance Winchell, "Dictionaries are the main sources for information about words, their spelling, pronunciation, meaning, derivation, etc. Theoretically, the dictionary is concerned only with the word, not with the thing represented by the word, differing in this respect from the encyclopedia which gives information primarily about the thing.

"Dictionaries should be purchased cautiously. Because they are expensive undertakings, unscrupulous publishers sometimes employ incompetent editors or insufficient help or offer a reprint of an old work with little or no revision. Furthermore, devious means are employed to hide such practices. The prospective purchaser, therefore, should use the same care in examining a dictionary before purchase as is recommended in the case of encyclopedias."[9]

Three major works were discussed in this paper. Each is a large work, but size alone is not a measure of work. For as the *Oxford English Dictionary* itself said, in 1933: "If there is any truth in the old Greek maxim that a large book is a great evil, English dictionaries have been steadily growing worse since their inception three centuries ago."[7]

Each of the dictionaries discussed is valuable, each having a different orientation and philosophy. There are other significant dictionaries as well.

The New Century Dictionary of the English language, published by D. Appleton-Century Company in 1927 has been revised several times. It is based upon the original *Century Dictionary*.

Other important dictionaries include the *Century Dictionary and Cyclopedia* with a new Atlas of the World (New York, Century, twelve volumes, 1911); *New Century Dictionary* of the English language, a much smaller work than the earlier, but based upon the original *Century Dictionary* and published by Appleton-Century in two volumes with 2798 pages in 1948); the *American College Dictionary* (New York, Random House, 1947, one volume with 1432 pages); as well as the shorter Oxford versions such as the *Oxford English Dictionary and the Oxford Dictionary of Current English*, both published by Oxford, Clarendon Press. Ω

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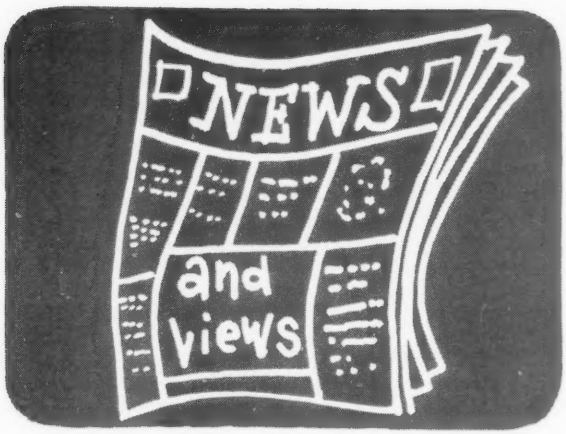
About the Author . . .

ALLAN LYTEL *is Manager of Publications for the Electronics and Ordnance Division, Avco Corporation, Cincinnati. He has had 18 books published, including* Technical Writing as a Profession. *In addition, he has contributed to many well-known technical magazines.*

A Senior Member of STWP, Mr. Lytel has served as Editor of the Review *since its inception in 1957. He is also a member of the IRE, a charter member of the IRE Professional Group on Engineering Writing and Speech, and a member of the Professional Group on Vehicular Communication.*

In 1960 he received his M.S. degree in technical journalism at Syracuse University.



By A. Stanley Higgins

A NEW MAGAZINE devoted to technical documentation is being published by Creative Associates, of Huntsville, Alabama. To be known as *The Technical Writer,* the inaugural issue was scheduled for June 1961, according to Alvis W. Howard, Jr., Executive Editor. Let's hope the new publication will reflect credit upon the profession whose name it bears.

WHO'S PUBLISHING . . . The April 1961 issue of the *ABWA Bulletin* (American Business Writing Association) included an article by James N. Kilpatrick. Title of the piece by the Pittsburgh Chapter member was "Ed Sees a Ghost." Ed, incidentally, turned out not to be an editor, but an employment manager looking for a ghost writer . . . In the same bulletin, October 1960 issue, Robert Boltwood, of the Southeast Michigan Chapter, was author of "That's What We're Here For." Described in the article was the course in business writing that Bob teaches at the Applied Management and Technology Center, Wayne State University . . . Glenn Kerfoot, member of the Cincinnati Chapter, recently had a booklet published on writing fundamentals called "Keep It Simple." The 16-page pocket-size offering, which is printed in two colors, is published by Economics Press, Montclair, New Jersey.

IF YOU HAVEN'T ALREADY DONE SO, you should read an article by Gilbert Kelton in the *IRE Transactions on Engineering Writing and Speech,* January 1961. Titled "Information Theory!" it humorously sets down in scientific journal form a "study" of faulty communications. The author has a full complement of curves, equations, glossary (example: *reluctance* is "the boss admitting you are right"), and references. One interesting curve shows that the higher the echelon which is transmitting information, the longer the time required to disseminate the information. When the transmitting source is the top echelon, the time required for the message to reach the bottom echelons becomes infinite.

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(Continued on Page 31)

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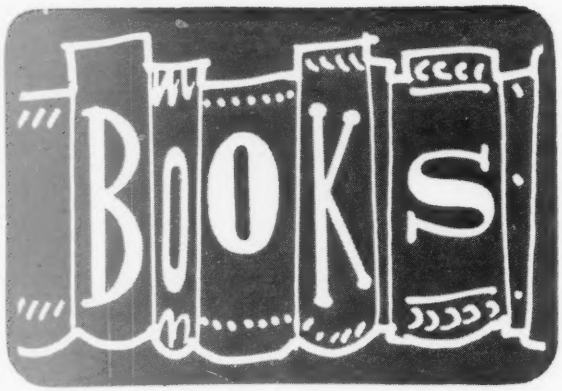

SCIENCE IN WRITING. T. R. Henn. 248 pages. New York: Macmillan Company (1961). $4.75.

This is a new approach to the field of instruction in the skill of technical writing. Mr. Henn is the President of one of the colleges in the University of Cambridge in Great Britain. He lectures on drama, poetry, and literature. It may seem surprising to many that a professor from the literary field should be writing a book for technical writers in the scientific field. This is exactly what Mr. Henn is trying to eliminate, this feeling of incongruity between the two fields.

In this short book, simply and modestly written, Mr. Henn has shown how necessary it is to dispel the idea of the "separation" of these two fields. As he puts it, his task is to "close the gap," eliminate the dichotomy between the arts and the sciences today. Every field of endeavor is the product of Man. To be a whole man, one must be in touch with both sides of Man, to close the division between the two sides. Because there is so much specialization in the knowledges of the modern man, this necessity for communication becomes itself a skill, another specialization. This is the need the technical writer can supply.

To show how much relation there is between the two major fields of endeavor, Mr. Henn has chosen illustrative passages from the best prose of some of the greatest scientific minds of ancient and modern times. His analyses and illuminations of these examples are his stimulating, new approach to help technical writers in their work. The method of the writer of each of the quoted passages is discussed for structure, logic, and style. His examples are from such ancient writers as Pliny and Francis Bacon, through Sir Isaac Newton, Charles Darwin, T. H. Huxley, to the present day C. G. Jung and Max Born. There are thirty writers in all, many of them much more familiar to the scientist than they are to the literary man.

The last chapter of the book consists of the author's suggestions for writing good prose, with emphasis on the particular needs of good prose in science. Here he is in full agreement with the techniques and rules listed by most technical writers and instructors. The names he gives each item may be different, but the meanings are unmistakably the same. He lists first clarity and adequacy, in both vocabulary and in imagery, which he suggests may be the best way to make a fact or a thought clear and understood. Then there is pleasantness, the even, harmonious flow of language that can best be attained by consistency, by variations in construction, by the use of illustrations, such as simile and metaphor. Most of all, he stresses the fact that there are no short cuts to learning how to write, whether in fiction, in poetry, or in technical writing. Like other skills of whatever nature, it requires practice, and practice, and practice. It requires writing and rewriting, discarding and starting afresh. It requires perseverance, or as one modern writer has put it, "the application of the seat of the pants to the seat of the chair."

Rose R. Tulcin

GO WRITE, YOUNG MAN. M. G. Bishop. 137 pages. Three Rivers, Calif.: Del Malanbob Press (1961).

Mr. Bishop, a technical writer, has written a book about technical writing. He does not like writers, teachers, STWP, TPS, the Air Force, the Navy, or much else. In many ways he is the poor man's Philip Wylie. Perhaps the best review is to let Mr. Bishop speak for himself.

Bishop on writing: "But, regardless of whom is included in the estimates, there is one thing which is sure—most of the people working as technical writers are not competent at their jobs. The ignorance and incompetency in the field is appalling. It is incredible how many people, who are sitting at desks acting like writers, do not know what they are doing. It is unbelievable how many people are drawing pay checks, some very nice checks too, as Technical Writers who are no more writers than bus boys are chefs. One of the reasons that missiles are fizzling out on launching pads, and the cost of defense equipment soars higher and higher is that too many people are pretending they are writers, when they have no more qualifications for the job than a hospital janitor has to perform brain surgery. If we were to estimate the number of really competent writers in the field, we would guess that there are less than 1000 throughout the country.

"These are pretty blunt statements, we realize. But they are blunt, not inaccurate."

Bishop on salaries: "Never was there a field of writing so full of promises for the writer. The writers who respond to the demands of this fantastically big and incredibly rich field will not be writers who have to live in cold garrets and grimly starve for their art. They will be writers who loll beside warm swimming pools and dip dainty crackers into crystal dishes of caviar. These writers will not be driven from their attics by screaming landladies demanding their rent. They are more apt to be driven to their country clubs by bowing chauffeurs. The salaries for these writers will range from $100 a week for a trainee to $20,000 a year for a seasoned writer. (Anyone who can write his own name can be a trainee, and anyone who has more than two years of solid experience is a seasoned writer.) If they are in business for themselves, or if they hold executive or supervisory positions, they will draw $30,000 or more per year. In 1959, the average salary for anyone who could read the title block of a blueprint and knew what a military specification was when he saw it, was $7500; and those who could read an electronic schematic diagram averaged $9000."

Bishop on education: "But, whatever the solution for the present problem, the long range solution is to educate and train Technical Writers. More and more educational institutions, both public and private, are stepping forward and announcing that they are ready to educate Technical Writers. Not counting the racketeers who claim they know everything, educational institutions find themselves caught in the crossfire between those who shout that a Technical Writer must have technical knowledge, and be a writer maybe, and those who cry out that a Technical Writer must be a writer first and have technical knowledge afterwards. Sooner or later they find that they must choose a side and start blazing a trail. But they seldom get very far until they are beset by doubts that they chose the right side, and if they have been at it very long, they find themselves just as confused and uncertain as most of the people in technical publishing.

"Colleges and universities are not sure just where they should put Technical Writing. Some educators are very certain that it cannot be any other place than within the Engineering Department; while some others are just about as definite that it should be in the English Department. A great many of them do not feel that it will be such a great thing wherever it is put. Those on the technical side of the argument feel that all they have to do is start teaching their engineering students a little more English, grammar, and composition. They have been, they con-

fess, a little lax in this anyway. They can take up the slack and then a student, who starts out to be an engineer, can switch over to writing, if he doesn't like engineering, or maybe if he can't quite make the necessary grade in engineering. They build a very good case for themselves to show that this technical writing thing is a technical subject and hence cannot possibly be taught anywhere else."

Bishop on the DOD: "And many of the manufacturers who are turning out publications in the same manner they turn out hardware believe they are doing a good job. None of them realize that the world's highest rates are being paid for the world's worst writing.

"So long as ignorance and greed dominate the military technical publications situation there will be no improvement. The situation will become worse, as it has done consistently over the last 15 years. Manufacturers interested only in profits are not apt to make any changes in a situation which is highly profitable. The military, caught in a trap of ignorance, is not apt to help the situation by anything they might do . . .

"But whether the type of inspection is product inspection or quality control inspection, the system is only one of the jokers in the inspection deck. A bigger joker is the military concept that an organization must be so perfected that it is independent of the people in it. Whether it is product inspection or quality control inspection the procedures are supposedly so well established that anyone can be an inspector. The inspector does not have to know what he is doing, he has only to do what the procedure tells him to do. This is the same concept which says a soldier does not need to know why he is shooting another soldier, he just shoots when he is ordered to shoot. Thus the inspectors who buy millions of dollars worth of technical publications each month do not need to know what they are doing —and they don't!"

Bishop on STWP: "The leaders of these groups have been the Society of Technical Writers and Editors and the Technical Publishing Society which merged into the Society of Technical Writers and Publishers to become the first national group. Almost the full time and effort of these groups have been devoted to trying to get someone—just anyone at this point—to recognize Technical Writers as professional people. Some Technical Writers have become almost neurotic about the situation. Everyone is constantly talking about it. At formal meetings of the societies, in the dim-lit booths at luncheon restaurants, in the bull-sessions in the men's rooms of factories, and wherever you find two or more Technical Writers you will hear little other than talking about a professional rating and standing . . .

"On the other hand Technical Writers are a nothing. They have no standing whatever. They want a professional status and they have a feeling that it is the engineers who are keeping them from getting it, or at least are not helping them. Keenly jealous of the engineers, they are fearful that they will not be able to do what the engineers have accomplished. Too, Technical Writers are uncertain of themselves, and have not the slightest idea who or what they really are or should be. They sometimes find themselves shouting for someone to look at who they are and then suddenly realizing that they themselves haven't looked. And when they look, they are often ashamed."

Bishop on Bishop: "This is a hard-hitting book, by an author who has never been afraid to say what he thinks—but who thinks first. With the keenness of a scalpel in the skilled hands of a long-experienced surgeon, Malden Grange Bishop cuts through the layers of confusion, half-truths, and half-thought-out ideas surrounding the technical publication field and lays bare the basic infectious growths.

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What else can we say?

Allan Lytel

THE CRAFT OF TECHNICAL WRITING. Daniel Marder. 400 pages. New York: Macmillan Company (1960). $5.00.

This reviewer was immediately impressed by two things in this book: the use of the word *craft*, which seems to be the *correct* word, and the general attitude of the author: "effective writing comes about through the knowledge and application of rhetorical principles."

The 16 chapters are divided into four sections: The Craft, Techniques of Organization, Structure of the Whole, and Techniques of Style. All of the chapters have to do with writing, not with forms of reports, kinds of reports, letters, etc.

Chapter 16 is a 22-page section on mechanics of style, but is a brief and unconvincing coverage of an important subject. The chapter is organized mostly as textbook, not as reference. Section V is almost an annotated appendix, containing illustrative and descriptive material on reports, memoranda, letters, oral reports, and articles. Again the coverage is quite brief.

Marder's book is *another book on writing*, a textbook for a college course in writing as a professional tool. The word *technical* in the title is misleading (the first sentence of Marder's Introduction): "Progress in all fields of technology—in medical, social, pure and applied sciences, and in engineering—would be impossible without the objective interchange of information."

Robert Sencer

GRAPHIC ARTS HANDBOOK AND PRODUCTS MANUAL. George A. Stevenson. 364 pages. Torrance, Calif.: Pen and Press Publications, Inc. (1960). $8.50.

An encyclopedia-type reference guide, this book catalogs and defines fundamental graphic-arts terms, explains production processes and methods, and combines in one handy, compact volume the equivalent of several file drawers of notes, brochures, and instruction pamphlets. It provides basic data on illustrating techniques, preparing copy, proofreading, paper selection, typography, platemaking, selecting tools and equipment, and printing.

This book offers to graphic arts people—writers, editors, illustrators, typesetters, engravers and printers, and to those in allied positions—a complete, authoritative source of reference material at less cost than the usual time-consuming practice of gathering such material piecemeal, categorizing, filing, and periodically weeding out the excess.

The author has included many frequently used tables and charts; editor's marks are clearly distinguished from proofreader's marks; and an extremely broad scope of helpful knowledge is covered in brief but specific fashion. As a result, student or professional will find the book useful as a glossary of the common, yet sometimes only superficially understood, ways and means of creating the graphic arts image.

H. A. Ritzie

NUMERICAL METHODS FOR SCIENCE AND ENGINEERING. Ralph G. Stanton. 266 pages. Englewood Cliffs, N. J.: Prentice-Hall, Inc. (1961). $6.75.

Mr. Stanton has written an excellent, clear, basic text that can be useful to undergraduates who have a good knowledge of calculus and differential equations.

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Jerry S. Kelly

CITIZENS BAND RADIO. Allan Lytel. 152 pages. New York: John F. Rider, Publisher, Inc. (1961). $3.90.

Allan Lytel, a prolific technical writer, has turned out another timely and most informative book. It will enable the layman user of Citizens Radio to choose his equipment wisely and to use it effectively. It will also give the service technician a full grasp of the field.

At the outset Allan tells the reader what Citizens Radio is and what it is not, a very important distinction. The various classes of Citizens Radio are described, and the applicable technical considerations and FCC rules are clearly spelled out.

Transmitter, receiver, and power supply circuits are illustrated and explained in clear, precise language. Leading makes of mobile, base, and portable sets are illustrated and described.

In addition to the now-popular class D sets, class A, B, and C equipment is described. A most interesting chapter deals with citizens radio kits.

The importance of an effective antenna system is stressed, and antenna functioning is clearly described. Details on how to install the equipment and overcome ignition noise are effectively presented.

For the user, Allan has explained how to operate the equipment. For the service technician, troubleshooting, preventive maintenance, and alignment procedures are given in readily understood form.

This excellent book will undoubtedly find an eager market. Four magazines have found that Citizens Radio articles increase their circulation. The wealth of up-to-date information in *Citizens Band Radio* should make it a popular one.

Leo G. Sands

TUBES AND CIRCUITS. George J. Christ. 192 pages. New York: Gernsback Publications (1960). $3.45.

Tubes and Circuits is recommended as a refresher publication for the practicing electronics serviceman. The reader should have had previous electronics training. It is assumed that the training was from a well-established school, but perhaps through time or inactivity in certain branches of electronics, the reader's knowledge has become somewhat hazy in certain areas.

The text is written on a technician's level and, as such, is not recommended for beginners. The mathematical and theoretical treatment is just enough to keep the text in the practical study range.

The book does not appear to be a course in any phase of electronics but serves as a ready reference.

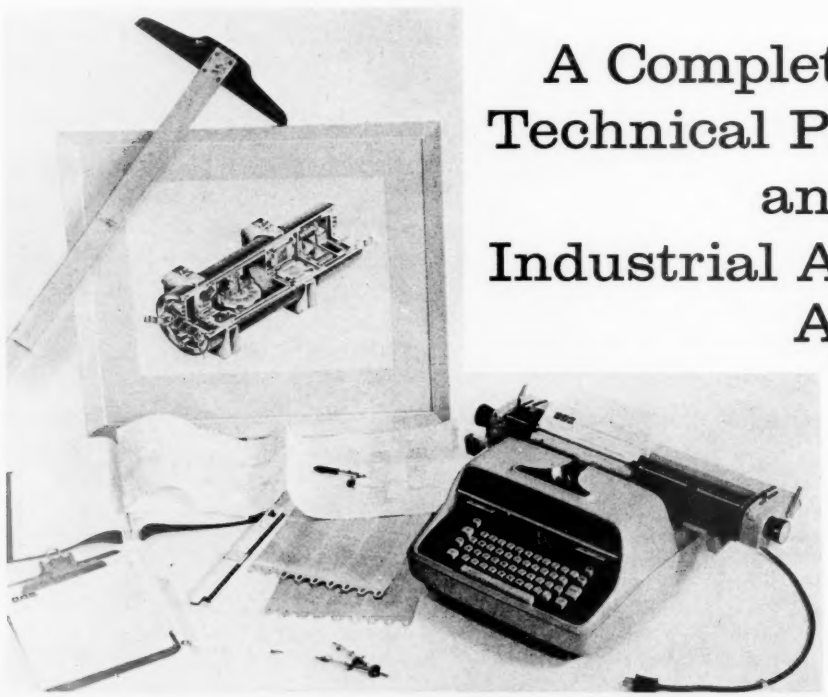
James Hamlett

EDITORIAL NOTES

(Continued from Page 2)

systems — must be refined and utilized. This program requires the fullest cooperation of private industry; professional societies; Federal Agencies; and nonprofit institutions, universities, and laboratories.

One element of the program should be vigorous support of what is called the Science Information Exchange (SIE), which was established in September 1960 by a number of Federal Agencies within the Smithsonian Institution. This organization is designed to register and index 200-word summaries of current projects supported by the U. S. Government in the physical, social, engineering, and mathe-



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Q What functions are involved?

A **You'll be providing the first "translation" of the raw material (i.e. graphs, schematics, charts, etc.) produced by the Design Engineer into manuscript form. From your manuscript and under your direction, support personnel provide publications covering systems philosophy, installation, operation, and maintenance for use by military customers.**

Technical competence is the vital qualification here. Certainly your writing talent is valuable, but in terms of major electronic systems—we need your technical competence. That's why even though you have responsibility from start to printed material, your support personnel take care of finished writing, illustrating, and printing.

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matical sciences. Since 1953, there has existed a comparable and reasonably successful Federal exchange in the biosciences. It registers 30,000 current medical, biological, and related projects. Through BSIE, as it was formerly known, any medical scientist anywhere in the United States — or anywhere in the world — can find out who may be currently engaged in particular research; or he may trace research done two, three, or four years ago which was never reported in the technical literature, but which may show up in the index of terminated projects.

EXTENSION TO PHYSICAL SCIENCES

The task now is to secure voluntary registration of abstracts of current research-and-development work in the physical sciences.

When it becomes operational in the new fields of its activity, the SIE can be an invaluable tool for Federal administrators, scientists, and engineers. Later, after Federal needs are begun to be fulfilled, non-Federal sources should have access to SIE including, of course, writers, editors, and publishers.

SIE is a key to knowledge about the very existence of a project. Ideally, however, it should fit in with documentation centers that contain copies of reports generated by the project. Such integration is not an easy task, but it is far from insoluble.

There are no less than seven Federal documentation systems today: (1) the Library of Congress; (2) the U. S. Department of Agriculture Library; (3) the National Library of Medicine; (4) the Armed Services Technical Information Agency; (5) the Office of Technical Services, Department of Commerce; (6) the Atomic Energy Commission's Information Division; and (7) the National Aeronautics and Space Administration's Technical Information Division.

In addition, there are vast numbers of Materiel Information Centers containing Federally sponsored reports on a vast variety of metals, minerals, etc.

No single center is or can be complete unto itself. So many of them overlap in coverage that it would be tragic for them to go their separate ways. There is every reason to secure optimal voluntary cooperation between all of these various centers and systems. Together they can serve their combined clienteles with bibliographic and other services which could greatly accelerate the nation's technical effort. Together they can help achieve a level of efficiency which will help reduce the inexcusable waste caused by unknowing partial or complete duplication.

COMPLETE EXCHANGE REQUIRED

A national science information network is needed. It cannot and must not be a monolith, like the Soviet Union's system. Democracy need not and should not imitate totalitarianism, but neither should it fumble or blunder.

The breakdown in scientific communications must be remedied. The communications arteries, blocked with "fat," must be cleared. Scientists, engineers, and technicians must be enabled to obtain nonclassified data when they want it and in the way they want and need it.

The alternative is to come out "second best" in the scientific race. This must not and will not happen.

If you are interested in making sure of U. S. success in science information, the time has come for you to act. Your professional society can be, as it has been, your spokesman for progress in science information.Ω

NEWS AND VIEWS

(Continued from Page 23)

within walking distance. Many other possibilities were within reach by cable car, which stopped at the hotel's front door . . . Speaking of cable cars, the few times I chose not to wait for one but instead to walk up the hill to the Mark were painfully relived for a couple of days after the convention. My legs felt like I'd climbed a 45-degree slope.

ONE SPEAKER at the convention unintentionally demonstrated an editing point as he gave his paper. After twice saying, in a discussion of different types of writing positions, "This type writer," he caught the error and corrected himself. It sounds much worse, especially if it's said rapidly, than it looks in print, doesn't it?

IT'S A GOOD SIGN when you see many new faces at the convention. This indicates the growth of our organization, as well as the profession. However, it's nice to see our old members, and many of them were missing in San Francisco. Of course having the meeting on the West Coast automatically eliminates some of the East Coast members because of distance. Some companies undoubtedly are reluctant to bear the high transportation cost. But that's one of the disadvantages of being a two-coast organization.

OCCUPATIONAL DISEASE? Are you troubled, as I am, with the habit of editing a talk while it's being given? I find myself, for example, deleting the redundancies, chopping out the trite expressions, changing such things as "data is." This almost unconscious malady interferes with the understanding of a talk, and I would like to cure myself. But how does one go about doing it?

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LETTERS

(Continued from Page 3)

Ethaline Courtelyou's "Building an Organization Style Manual for Technical Reports" is clear, interesting, concise, and highly informative. Her occasional touch of wry humor is delightful.

Dr. Cottrell's "The Question of Audience" is to me truly extraordinary for its insight, its crystalline clarity (with one minor exception), its enduring wisdom, and a quality of evocativeness which is the heart of poetry. The one obscure passage comprises paragraphs two and three of the section headed "Dangers Noted." Somehow I found myself missing the point completely. With its one flaw (which may well be mine), "The Question of Audience" deserves to be framed and mounted on the wall, and it shall be.

Robertson Osborne
Burroughs Corporation
Temple City, California

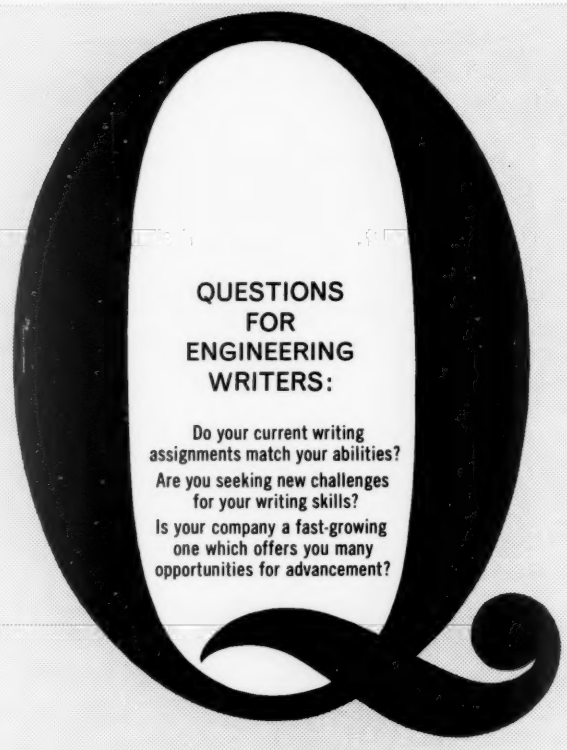
To Editor, *STWP Review:*

In his otherwise fine autobiographical sketch (is egotism the occupational disease of technical writers?), Dr. Cottrell seems to be a good deal less than "somewhat informed" about music. The sentence he quotes from the discussion of the Mahler music is crystal-clear if only one has enough musical wisdom at hand.

Descant—"discant," in some music dictionaries—is simply another word for soprano. A triplet is a three-note phrase sung in the space of one beat; if the music is in "common time," for example, there will be four of these triplets to make up the four beats of the measure. Chromatic triplets are a succession of such three-note phrases sung in the chromatic scale; that is, with half-tones between each of the notes. The expression "rush down," which Dr. Cottrell resents so bitterly—and he has a point there—evidently indicates that the triplets descend chromatically in rapid tempo. And when the soprano reaches the lowest tone of her run, she finds her final note part of a C-minor chord. Now any minor chord has a melancholy aura about it, and its melancholy is underlined when it puts a period to a chromatic sequence. Hence the commentator's use of the word "bleak." I can't imagine why Dr. Cottrell objects to it. To be sure, it is "emotionally colored," but one of the nice things about music is that it does rouse the emotions. Even writers of program notes are entitled to an emotional orgy now and then.

Dr. Cottrell goes a bit too far when he attempts to speak for critics. The layman may hate this kind of writing in program notes—and he often "dares" to say so—but that is only because, in his ignorance, he cannot make head or tail of it. But the critic welcomes it if only because it might help steer him in the right direction in his analysis of the music. As a part-time music critic, I can attest to that; program-note writers are not complete imbeciles. Nor is it fair of Dr. Cottrell to discuss the reactions of only trained musicians and laymen. Between these opposite poles there are a great many people who are better than "somewhat informed," yet are certainly not professionals. It is primarily to these people that the program-note writer addresses himself. A good many of them are knowledgeable enough to recognize words like *pizzicato, sarabande,* and *answering brass choir*—in fact, they would feel affronted if the writer were presumptuous enough to attempt to explain them. No writer, technical or otherwise, can afford to stop for definitions every time he uses an uncommon term; he would find himself up to his neck in a verbal quagmire if he did.

Dr. Cottrell shows good taste when he complains about the trivia—details of the composer's love life, what he murmured on his deathbed, and other such nonsense—that clutter most music writing. Stuff of this sort had better be left to the Freud-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ians. But Dr. Cottrell should certainly not grumble when the writer attempts to educate him. If the Doctor is as much a music lover as he professes to be, he should take the trifling trouble to check words like "descant" and "triplets" in the dictionary. And he needn't consult a music dictionary. Webster does the job well enough.

Jesse Dilson
New York City

To Editor, *STWP Review:*

I am sure that you saw the article "Information for IRE Authors," which appeared in the September 1960 issue of the *Proceedings of the IRE*. It occurred to me that this article might be appropriately reprinted by the *STWP Review*. If such a reprint is impossible the *Review* might at least mention this revised IRE style guide and inform its readers that reprints of it are available.

Donald E. Thackrey
The University of Michigan

To Editor, *STWP Review:*

In the *Review* you indicate an interest in articles published elsewhere. Are you acquainted with the *General Motors Engineering Journal?*

This quarterly publication is prepared for college and university educators in the fields of engineering, the physical sciences, mathematics, and industrial design. It is supplied on a request basis at no charge. Multiple copies are available on a regular basis or for special uses. Also, back numbers are available.

The articles are scientific and technical. Some have been in the field of technical communication; for example: "Characteristics and Organization of the Oral Technical Report," "Some Comments on the Importance of Effective Technical Communication," "Preparation and Evaluation of an Industrial Report," "How to Organize and Write Effective Technical Reports."

The *Journal* address is: Educational Relations Section, Public Relations Staff, General Motors Technical Center, P.O. Box 177, North End Station, Detroit 2, Michigan.

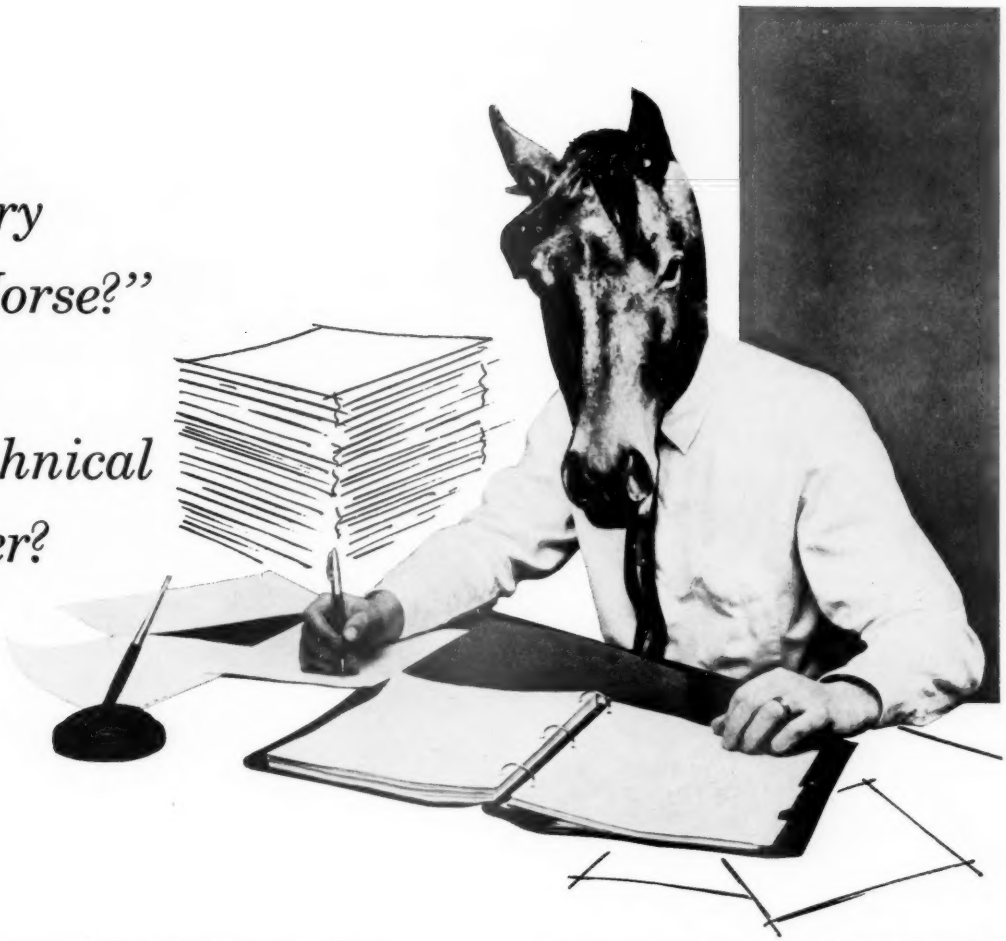
Robert M. Boltwood
General Motors Technical Center
Detroit, Michigan

To Editor, *STWP Review:*

One suggestion for a future issue of the *Review* is an exchange of information concerning the activities of the several education committees of STWP chapters around the country. Many of us could put more variety into committee and chapter activities if we knew what was being done by others.

A. C. Steinbach
Fort Wayne Chapter

"Harry the Horse?" or a Technical Writer?



THIS is not "Harry the Horse" studying a racing form. Rather, it is our idealization of a good technical writer and his distinguishing characteristic—horse sense. We know of a great many characteristics we'd like in technical writers; but this is the only one we seem unable to get along without.

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